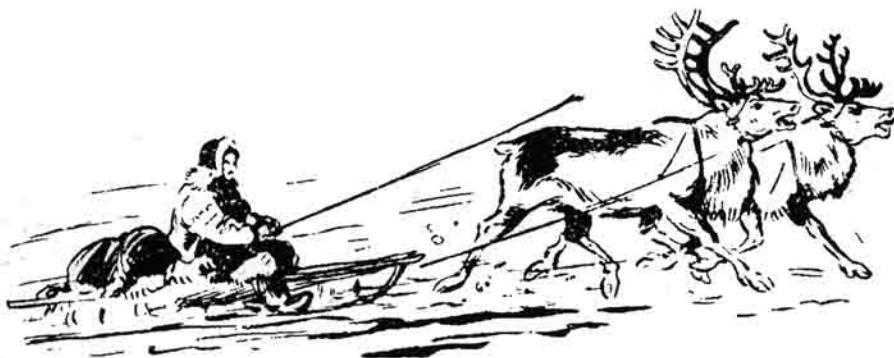


GEOGRAPHY



CHAPTER 1

DIRECTIONS

KNOW YOUR DIRECTIONS

You probably remember the names of all the four directions

East, _____, _____ and _____

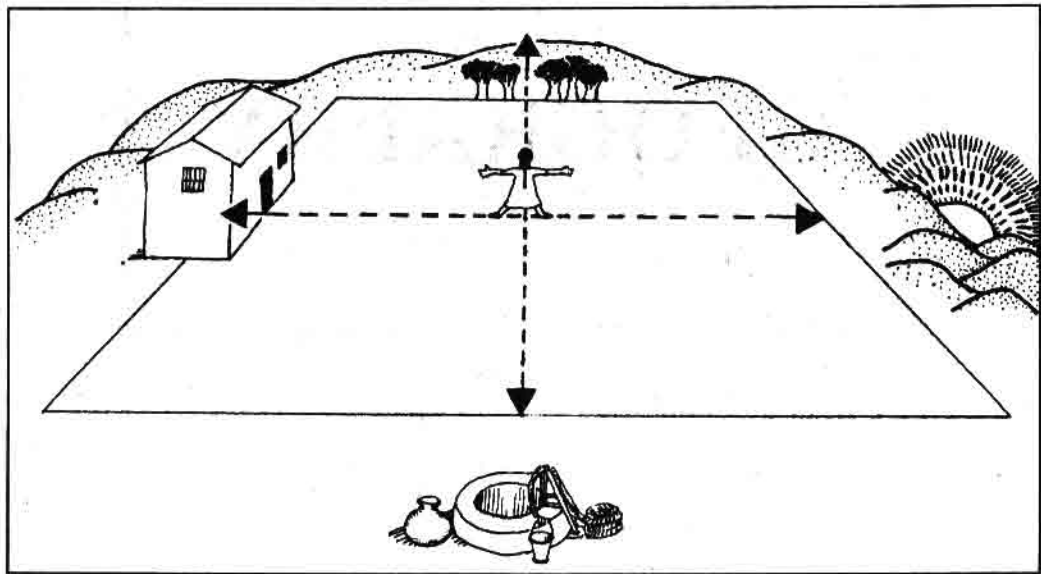
You also know that the sun rises in the _____ and sets in the _____

Turn your face towards the direction in which the sun rises. On your _____ side is the West and on your _____ side is the East.

To your right is the South, and to your left, the North.

Now turn to your left. Now you are standing with your face to the north (as shown in the picture).

Now to your right is the _____ and to your left is _____. At your back is the _____.

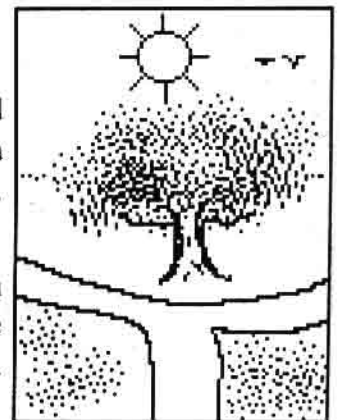


Mark all the four directions in this picture.

“WHICH DIRECTION TO GO?”

Early one morning Gullu set out for a village called Palasner. He had been told to take the straight road and walk for an hour till he reached a banyan tree. There he would find two roads going in opposite directions. He was to take the road going north.

Gullu reached the tree easily. He also found the roads which went in two opposite directions. However, he could not figure out which of the two roads went towards the north. If you were Gullu, how would you find out which road went north?



AROUND YOUR SCHOOL

You can also find the north with the help of a magnetic compass. Take a compass and go around your school. Find out - which side of your school is the north. Note the things you see in that direction.

What do you find in the south?

What do you find in the east?

What do you find in the west?



A compass

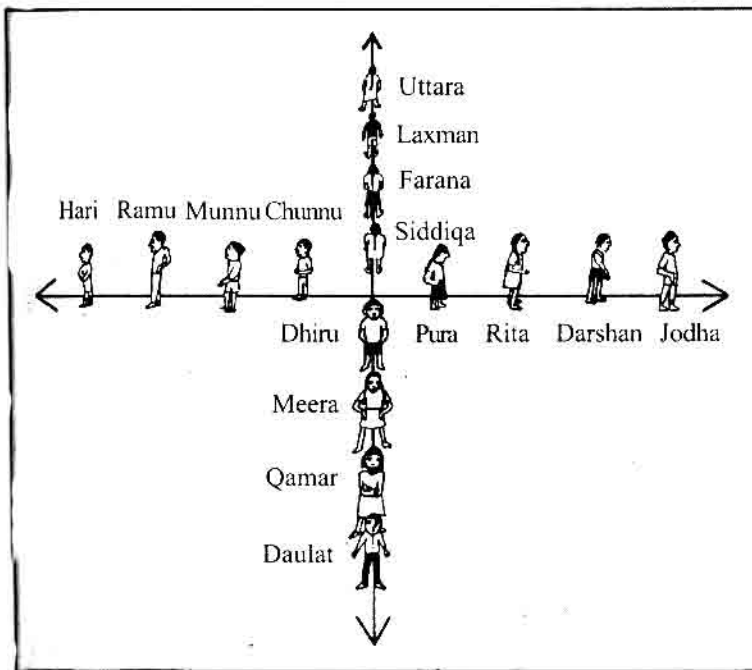
FUN WITH DIRECTIONS

Daulat is a student in Class 5. His teacher taught the class a game to help them to understand directions. He made all the students stand as shown in the picture. He then said, "Uttara, you are facing the north. Can you say which direction the rest of the class is facing?"

From Uttara to Siddiq -

From Pura to Jodha -

From Dhiru to Daulat -



LET US PLAY ON

See the picture and say who is standing south of Siddiq.

Who is standing north of Dhiru?

Who is standing east of Chunnu?

Who is standing west of Pura?

How many children are standing south of Meera?

How many children are standing south of Laxman?

Name the children standing west of Pura.

You can see that Chunnu is to the west of Pura but is east of Munnu. Likewise, Farana is to the — of Uttara but is to the —

— of Daulat.

The teacher explained, "There is an interesting thing about directions. A place does not in itself have a direction. Directions are relative and no place is by itself in the north or east. It may be north of one place but south of another. For example, Siddiq is standing to the north of Dhiru, but she is also to the south of Farana and to the west of Jodha. To drive home the point the teacher asked a few more questions.

Munnu is to the — of Chunnu and to the — of Ramu.

Rita is to the — of Pura and to the west of — and to the — of Uttara.

Qamar is to the — of Meera and to the north of —.

DIRECTIONS IN MAPS

You will see several maps in this book - of villages, towns, rivers, mountains, states, oceans, etc. How does one identify directions in such maps?

Maps are always made in such a way that the north is always towards the top. You have seen that when you face the north, the east is on your right and the west is on your left. The same applies to maps as well. In a wall map, the north is on the top and the east is towards the right and the west is towards the left. The south is opposite the north, that is towards the bottom of the map.

A SKETCH-MAP OF DAULAT'S SCHOOL

Daulat's class teacher drew on the blackboard a sketch-map of the school and its surroundings.

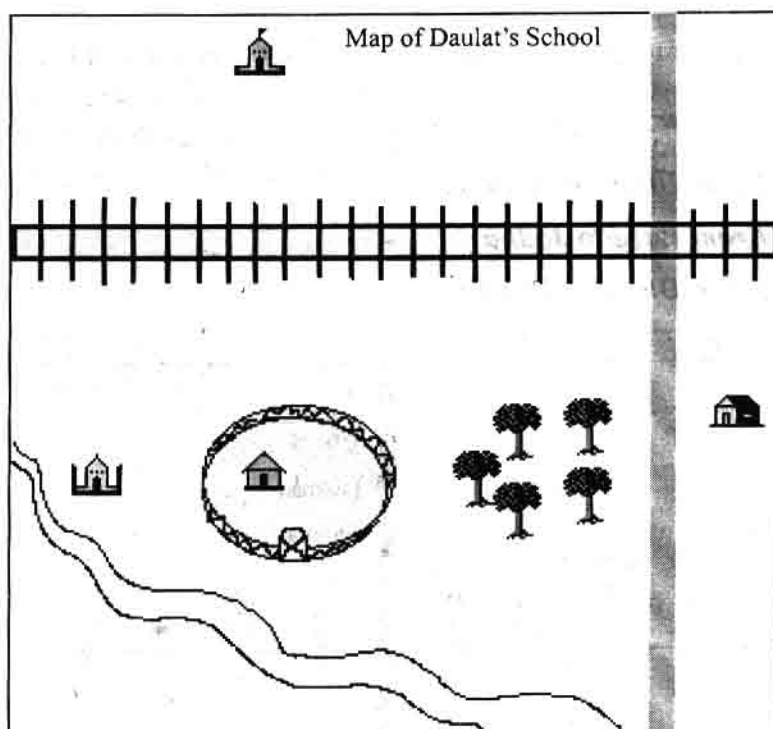
In which direction of the school does the railway line lie?

In which direction of the school are the trees?

In which direction of the school is Daulat's house?

In which direction of the school is the mosque?

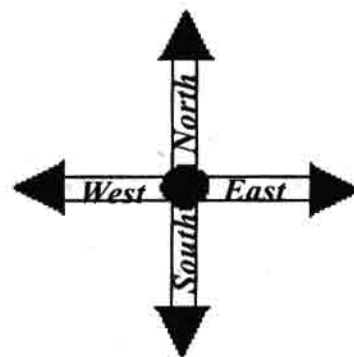
There is a very easy way to find out the direction of places and objects on a map. What is this method?



Make Direction Arrows

Take the cardboard cover of an old notebook or book. Draw arrows of directions as shown in the picture on the cardboard. Write the names of all four directions in the correct places.

Cut out the figure carefully. All the students must make their own direction arrows.



Direction Arrow

Tell the Direction

To know the direction of any object/place from any other, keep your arrow on the place. If you want to know the direction of the mosque from the school, keep the direction arrow on the school. The direction arrow should be kept in such a way that the circle in the middle of the arrow should lie on the school. You should also remember to keep the arrow marked "north" pointing towards the top of the page. Now keep the direction arrows on the following places and answer.

In which direction from Daulat's house is the road?

In which direction from the river is the mosque?

What is to the west of the trees? In which direction from the mosque is the river?

What is to the south of the temple?

Draw a tree to the east of Daulat's school, but west of the fence.

Draw a tree to the south of the temple but north of the railway line.

A PUZZLE

Daulat was going through some old papers in his house. Suddenly, he came across a piece of paper which contained a clue to some hidden treasure. This is what was written on the paper:

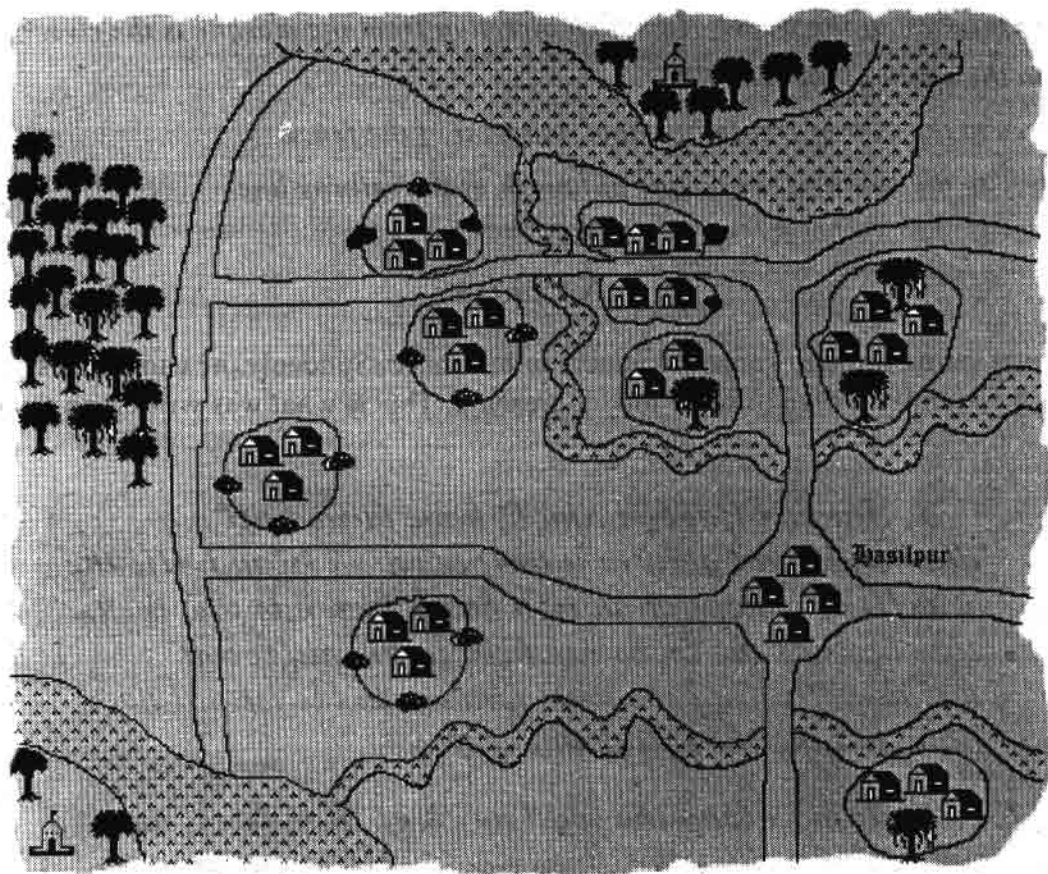
I, Thakur Gabbar Singh, have buried all my diamonds and gold in a temple on an island. All the jewellery is kept in an iron box which has two locks. The keys of the locks are kept in two different villages. To find the keys and reach the island you have to take the following route.

Walking along the road north of Hasilpur, you will come across the Banas river. After crossing the river you will find another road. East of the road you will find Inamgaon. South of Inamgaon you will find a banyan tree. Inside a hole in this tree you will find a box in which is kept the first key.

Walking further north on the same road, you will reach a trijunction. There you must turn west. After walking west for some time, you will once again come to the Banas river. West of the Banas river and north of the road, there is a village called Tripuri. East of this village there is a rock, underneath which is the second key.

After walking for some time on the road west of Tripuri you will come to a dense jungle. Without entering the jungle turn north and walk straight till you reach the edge of a lake. There is a small island in the lake. This island is covered with trees and bushes. Amidst them is a temple. Near the temple wall you will find a huge boulder. When you remove the boulder, you will find a tunnel leading to the chamber which has the trunk full of my jewels.

Gabbar Singh



Daulat also found another piece of paper containing a map. There were several villages shown on the map, but their names were not mentioned. Only Hasilpur village was named.

Can you locate the road that Daulat took to find the treasure? Use arrow marks to show the road.

Locate on the map the villages of Inamgaon and Tripuri, and write their names next to them. Put an 'X' mark on the places where the keys were found. Put an 'O' mark where Daulat found the hidden treasure.

DIRECTIONS ON A MAP - AN EXERCISE

One day the teacher took out the map of Madhya Pradesh and asked the students to identify places they have been to or have heard of. Then she asked them to see which direction one had to travel in order to reach those places.

Fill in the blanks

To go to Itarsi from Hoshangabad one will have to go in _____ direction.

However to go to Itarsi from Betul one will have to go in _____ direction.

We will have to travel towards _____ direction to go to Itarsi from Jabalpur.

Itarsi lies _____ of Khandwa.

You can see that Itarsi has no direction in itself. Its direction is always in relation to another place.

CHAPTER 2

LET US MAKE A MAP

You must have come across many maps - of your state, India and the world. With the help of maps, we can locate a place and learn about its nature and surroundings. In this chapter we will learn about maps and how they are made.

PICTURES AND MAPS

You must have seen pictures or photographs of many places. There are many differences between pictures and maps. Here is a picture of Daulat's classroom. On page 83 there is a map of the same classroom. Do you find any difference between them?

1. In a picture objects are generally shown the way they look. In a map, objects are not shown as they actually look, but with the help of symbols.
2. A picture is generally made in such a way that a viewer feels that she/he is looking at the scene or object from one side on the ground. A map is made such that the person feels that she/he is looking at it from above or from the sky.

HOW IS A MAP MADE?

One day, when the teacher was showing the class some maps, Daulat asked, "Sir, how are these maps made? How can you show such a large place on such a small piece of paper?"

The teacher replied, "Tomorrow we will make a map of our classroom. Then you will know exactly how a map is made. So when you come tomorrow please bring with you a ruler, matchsticks and a piece of chalk."

Select Your Symbols

Next day the students set out to make a map of their classroom. The teacher said, "First you must make a list of all the objects in the room that cannot be moved, like cupboard, doors, windows, black-board etc."

Daulat and his classmates made the list and wrote it on the board. Their teacher then reminded them that objects are shown on a map with the help of symbols. The class was asked to choose symbols for every object in the list.

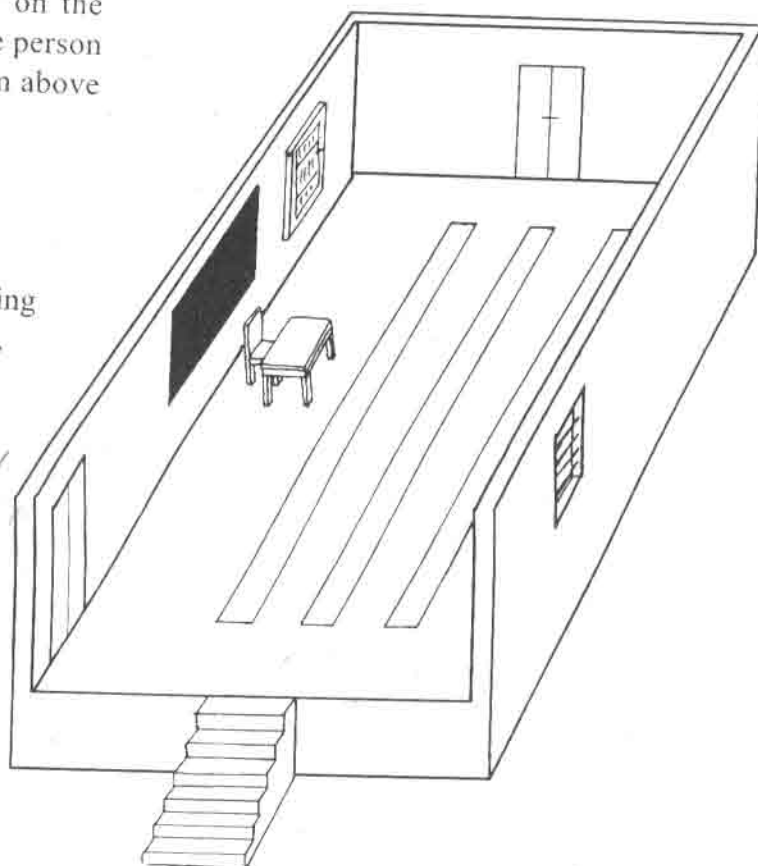


Figure 1 : Picture of Daulat's Classroom

Index of Symbols

Objects	Symbols
Cupboard	
Door	
Window	
Road	
Blackboard	
Steps	

Face the North

The children sat in groups of four. The teacher asked them to sit facing the north.

Measure the Classroom

The teacher told the class, "You have to make a small map of a big classroom. To do this you have to first measure the length and breadth of the classroom."

Daulat and his classmates set out to measure the wall facing the north, using a ruler. The length of the wall equalled six rulers.



'One Ruler Equals One Matchstick'

The teacher said, "A wall measuring six rulers will have to be made smaller to fit into a small piece of paper. So let us take one matchstick to be equal to one ruler. This means that in our map the north wall will be the length of six matchsticks."

Daulat placed six matchsticks in a line, and the north wall was made.

The wall in the east was also measured with the same ruler. It was nine rulers long. The class therefore placed nine matchsticks in a line to show the east wall.

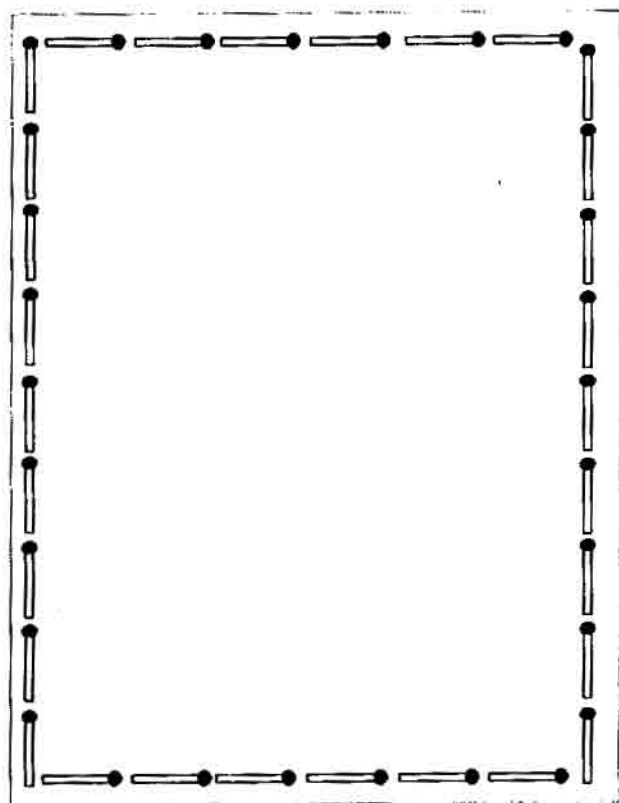


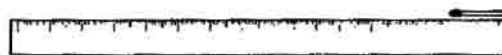
Fig. 2. The 'matchstick map'

The south wall was six rulers long and the west wall was nine rulers long. The students therefore arranged their matchsticks accordingly.

When all the four walls were made by arranging the matchsticks, straight lines were drawn along them. Then the matchsticks were removed. See Figure 2.

Scale

The teacher said, "You have measured the class walls with a ruler, and to draw the map you used one matchstick to show the length of one ruler. This means that in your map, if the distance between two objects or places is one matchstick, it is actually one ruler on the ground. This, then, is the scale of your map."



1 matchstick = 1 ruler

"Every map has a scale. With this scale we can find out about the actual distance between two places or objects shown on the map," said the teacher.

Fill in the Symbols

The four walls of the classroom had been drawn. Next, all the objects in the classroom had to be shown in their correct position. The symbol for the door of the classroom was, therefore, marked in the map in the same direction as it was actually located in the classroom. In the same way, the cupboard and windows were marked in the correct direction. Daulat's map was finally ready (see fig. 3).

Correct Your Orientation

When all the maps were made, they were compared with each other. Daulat noticed that Ramu and Uttara had made maps in a different way. The teacher said, "The orientation of these maps is different. Ramu and Uttara had drawn the north wall of the classroom towards the right side of the paper. This is not correct. The north wall should be drawn towards the top." Ramu and Uttara, therefore, corrected their maps.

This was how the map of Daulat's classroom was made. Now make a map of your own classroom with the help of your teacher. First of all let us revise what we had learnt from the example of Daulat.

ALWAYS REMEMBER

1. A map is always made in a such a way that a person feels she/he is looking at the place from the sky above.
2. In a map, all objects, walls, roads, etc. are shown by symbols.
3. To make a map, the actual distances are measured and reduced according to the scale.
4. The north in a map is always towards the top margin. All the objects in the map are plotted in the same direction as they are on the ground.

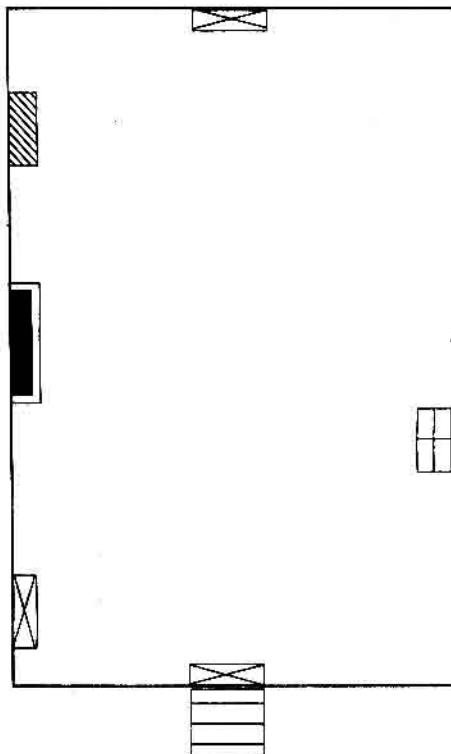


Figure 3 Map of Daulat's Class-room

INDEX	
Door	
Window	
Almirah	
Blackboard	
Stairs	

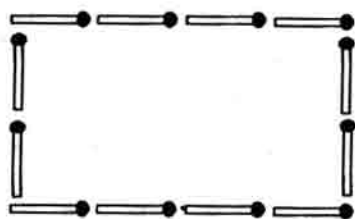
MAKE A MAP OF YOUR CLASSROOM ON THE GROUND

1. First of all, stand in one place and **identify all the four directions**. After this, make teams of four and sit facing the north.
2. **Make a list of the objects** in the class which cannot be moved. **Make symbols** for each of these objects.
3. **Prepare a sketch** of your class room on a piece of paper and complete it with the symbols you have made.
4. **Measure** the walls with a ruler. Then write on the blackboard how many rulers long each wall is.
5. **Put one matchstick** on the ground for each ruler length and in this way make the four walls with matchsticks.
6. **Draw straight lines** along the matchsticks with a chalk . Then remove the matchsticks.
7. Observe all the objects in the classroom and note their position. **Plot these objects in the right place** in your map using the symbols you have made.
8. Compare your map with those of your friends and **correct your mistakes** if there are any.
9. Now look at all the objects in your classroom once again and compare them with your map - have you placed all the objects in their proper position? Are the length and breadth of the classroom correct?

MAPS OF DIFFERENT SCALES

You used one matchstick to show the length of one ruler. If you want to make a bigger map, you may use two matchsticks instead of one to show the length of one ruler. The size of the map will then be doubled. In this way you can make maps of different sizes.

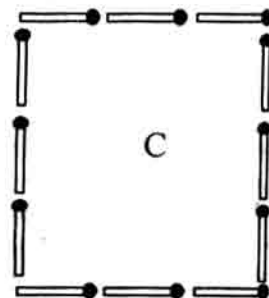
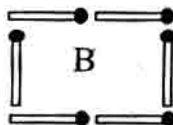
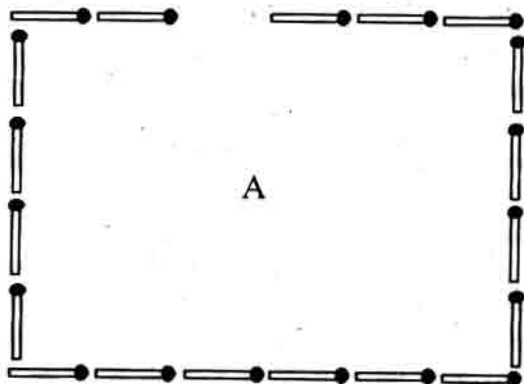
Here is a map of a class room drawn on a scale of one matchstick = one ruler.



i) How many rulers long is the northern wall?

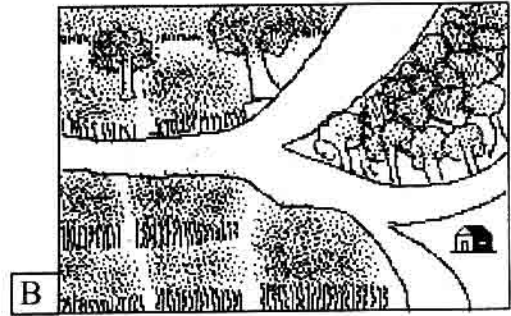
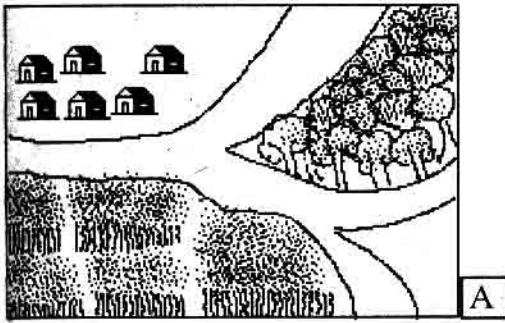
ii) How many rulers long is the western wall?

If we were to prepare the map of the same classroom with the scale of one matchstick = 2 rulers which of these maps would it be similar to?

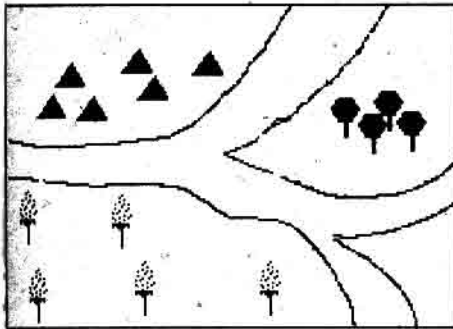


EXERCISES

You can see pictures of two places here. The map of one of the two places is also given. Which picture does the map represent? Find out with the help of the symbols given in the index below.



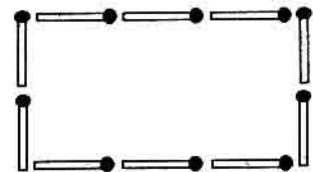
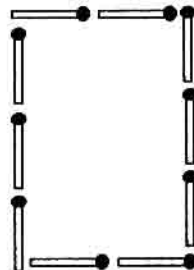
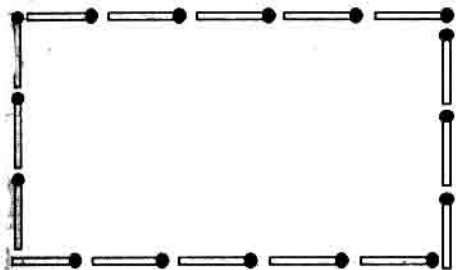
MAP



INDEX

	Fields
	Houses
	Forest
	Road

2. Monu made a map of his kitchen. The south wall of the kitchen was 2 rulers long. The east wall was 3 rulers long. Monu used the scale of one matchstick = one ruler. Now, can you tell which is Monu's map.



Make a map of Monu's kitchen with the scale 1 matchstick = half ruler.

MOUNTAINS, PLAINS AND PLATEAUS

- *Look at these figures. Which of these looks like the area where you live?*
- *Describe these four figures. Can you point out the similarities and differences between them?*

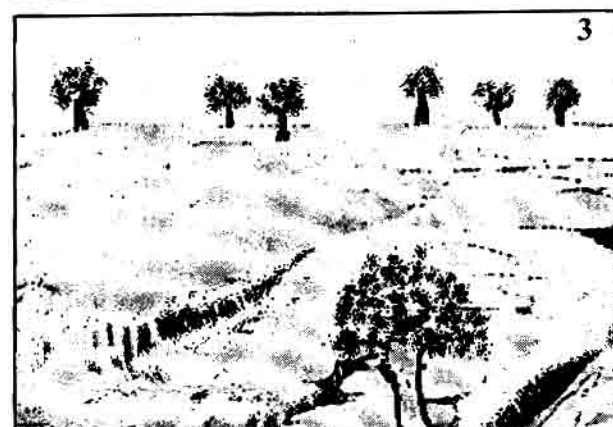
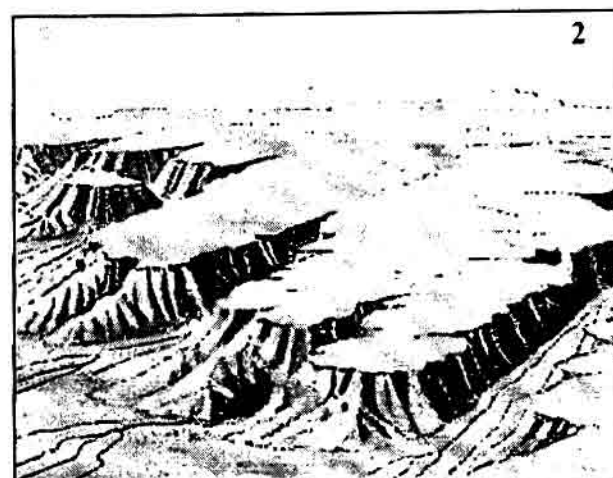
Of the figures given on this page, one is of a plateau, one of a mountain, one of a plateau surrounded by mountains and one of plains.

In the plains, the land is level as far as the eye can see. The ground is not very uneven.

Mountains have high peaks and steep slopes on all sides.

A plateau does not have such steep slopes as the mountains. If you are on a plain you have to climb the steep slopes of the escarpment to reach the top of the plateau. Here the land is almost flat compared to the mountains but is also somewhat uneven and undulating. In this way plateaus share some features of both the plains and the mountains. Some plateaus are surrounded by mountains and have hills on all four sides.

- *Can you recognise which figure is-
- plain; plateau; mountain; plateau surrounded by mountains.*



Your Region

- *Is your region known by any particular name, for instance, plains of the Narmada Valley, Malwa Plateau or Satpura hills?*
- *Hang the physical map of your state on the wall of your classroom.*
- *Locate the area which shows your district or tehsil.*
- *Ask your teacher to help you to find out on which plain, plateau or mountain your village is situated.*
- *Describe in five or six sentences the physical character of the area you live in.*

Where Do People Settle?

Whether it is a plain, mountain or plateau, people live where they can find drinking water, land to cultivate crops and materials for building houses.

- **What are the main items in the diet of the people of your area?**

1. The main cereal: (like wheat, rice, etc.)

2. Dal:

3. Meat:

4. Spices:

5. Fish:

6. Vegetables:

7. Eggs/chicken:

8. Oil:

9. Fruits:

10. Salt

- **Apart from these, sugar, jaggery and salt are also important in the diet.**

- **Which of these food items are grown or produced in your area? Make a list.**

Would it be correct to say that people mostly eat those food items that are easily available in their locality?

For example, people who produce wheat mostly eat chapati. Where rice is grown, it

becomes the staple food.

Human beings cannot survive without water.

- **What are the important uses of water?**

- **What are the sources of water in your area?**

- **Can people stay in a place where there is no water at all?**

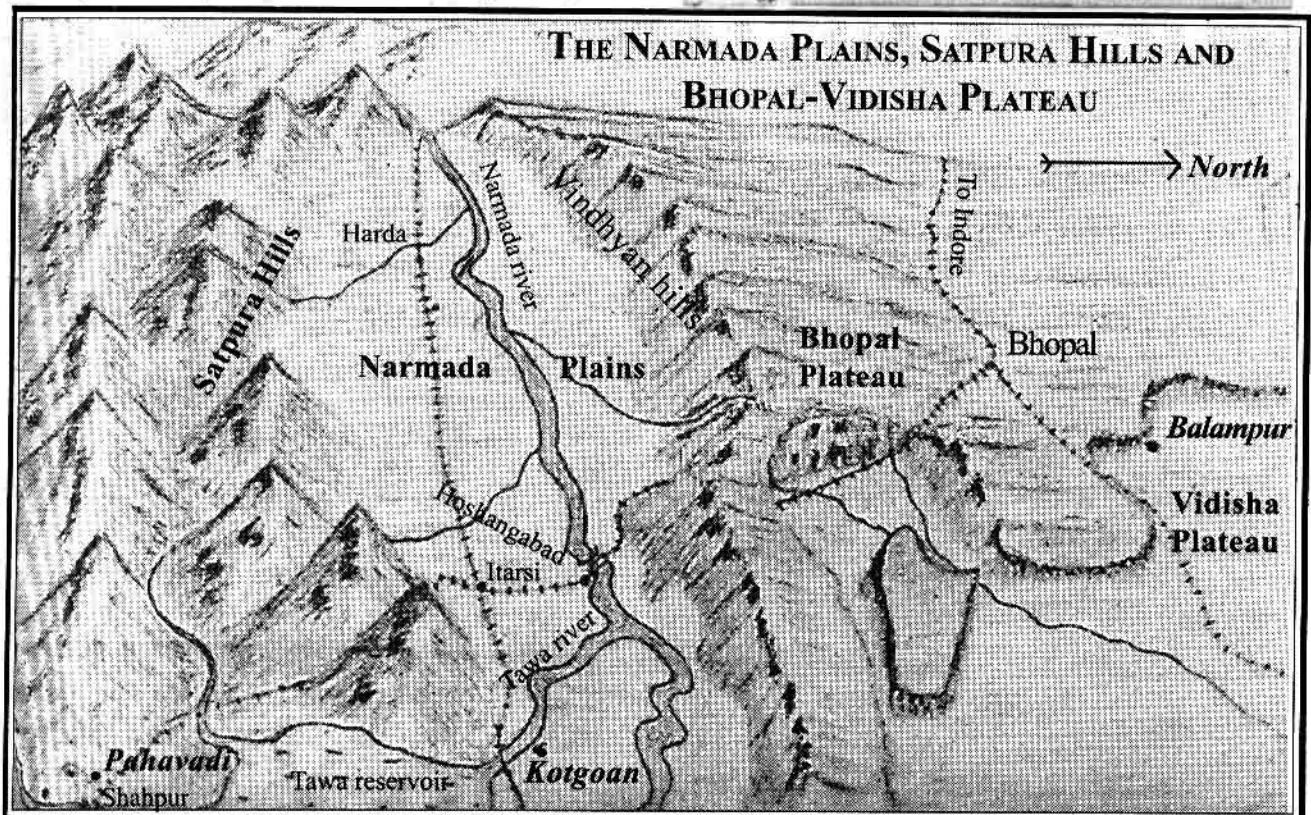
Water is not easily available in all places. Villages and towns are built only after carefully considering the possibilities of finding water.

- **What materials are used to build houses in your locality? Which of these materials are found in your locality itself?**

Would it be correct to say that a house is usually built of materials found in the locality because they can be carried easily to the construction site?

How do people live in the plains, mountains and plateaus? As you have already seen, all three are different from each other. Each offer different kinds of possibilities and pose different kinds of difficulties.

- **According to you, which area is the most convenient for people to live in and in which area is it the most difficult? Discuss the reasons.**



On the previous page you saw a picture which shows some part of the hills, plateaus and plains of Madhya Pradesh.

What do you recognise in the picture?

Which mountains do you see in the picture?

Which plains do you see?

Which plateaus do you see?

Does the plateau have steep slopes on its sides or is it surrounded by mountains?

In the picture, which river has the biggest plain?

Does any other river meet this river? What is its name?

Is there any village near this river?

Which towns have been shown on the plains of the Narmada?

Is Bhopal located on a mountain or a plateau?

On the side slopes of which plateau is the village of Balampur located?

In this picture, which village and which town are surrounded by hills?

Come, let us visit villages on the plains of the Narmada, in the hills of Satpura and on the Bhopal-Vidisha plateau.

KOTGAON - A VILLAGE ON THE PLAINS



Fig. 1. Boat laden with vegetables on the Narmada

Look carefully at the sub-headings and pictures in this chapter and find out what has been discussed about villages of the plains. Discuss amongst yourselves, what you have seen and heard about the plains.

Riverine Plains

Hoshangabad town is situated on the banks of the river Narmada. The Tawa river flows a little distance away from this town. Yes, it is the same Tawa that you saw earlier in the picture on page 87. This river flows into the Narmada. In this way the Tawa is a tributary of the Narmada. The Tawa comes from the Satpura hills and meets the Narmada at Bandrabhan, which is to the east of Hoshangabad.

- **Have you ever seen a river or a stream meet another river or stream?**

Going towards the Tawa from Hoshangabad, we find vast stretches of level fields. There are no hills or steep slopes. Nor can we see any forests. These are the Plains of the Narmada.

After travelling nine kilometres eastwards from Hoshangabad, we come across the Tawa river. This is a very broad river, but the river bed is full of sand. We see only a thin stream running near the bank. It is only in the rainy season that the river bed is filled with water.

The fields near the river have fine soil. When a well is dug here, there is mud for the first five to six feet. The next 20 feet are filled with sand and below that there are round pebbles.

These sands, mud and pebbles have been brought down and spread on the plains by the Tawa and other rivers. The stones have been smoothened by the water so that they are round in shape. The Narmada and its tributary rivers have spread silt and sand on these plains and made them flat.

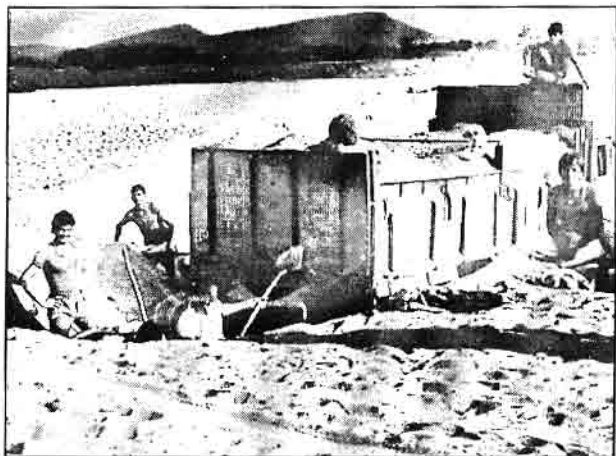


Fig. 2. Excavating sand from the bed of the Tawa

Amidst the level fields we can see a few clusters of trees. The villages are settled within these clusters. There are no forests in this region other than these clusters. The land here is so fertile that the people have cut down the forests long ago and converted them into fields.

The Plains of the Narmada extend far and wide on both sides of the Narmada.

- **Look at the extent of the Narmada Plains in the physical map of Madhya Pradesh.**
- **Which of the following towns are situated on the Plains of the Narmada: Harda, Bhopal, Dewas, Sagar, Itarsi, Piparia, Betul, Narsinghpur.**
- **What are the special features of a river plain? Pick out five sentences from the above section which illustrate the special features.**

KOTGAON

We wanted to see a village situated in the plains. So, we took a *kutchra* road leading to Kotgaon. Like all other villages of the plains, Kotgaon is also located within a cluster of trees. The Tawa flows to the west of the village. A small stream called Belia runs through the village and meets the Tawa. Like

the Tawa, the Belia also has a lot of water in the rainy season. It remains dry during the rest of the year. The Belia also deposits fertile soil on the lands of Kotgaon.

- **See the map of Kotgaon on page 96 and identify the Belia stream.**

Soil

What kind of soil is available to the people of the riverine plains to cultivate crops? Let us go around Kotgaon and see for ourselves.

First of all we notice that the soil is deep. The river carries with it waste matter, rotten leaves and roots and deposits all these on the plains. They mix with the soil and make it more fertile. The soil does not contain gravel or stones. Such soils are good for the growth of crops. This advantage is not available to people everywhere. We will understand this better when we see the mountain and plateau villages.

- **Do you think the soil in the hills would be different? Explain.**

Though the soil in the plains is fertile, it is not the same everywhere. In some places, the soil is black and clayey, and in other places it is loamy, that is, it has sand and clay mixed in equal proportions.

Soil and Crops

What crops can be grown in the soils of the plains? The farmers of Kotgaon told us that on both kinds of soils – clayey as well as loamy – wheat, gram, jowar, masoor, tuar, paddy and soyabean can be cultivated very well. These soils are able to retain moisture.

However, because these soils retain moisture, crops like (sesame) and groundnut



Fig. 3. Plain, flat fields of Kotgaon



Fig. 4. This is the bank of the Tawa river. A thick layer of loamy soil can be seen on top of the high sandy banks. Some clumps of this fertile soil have fallen down on to the sandy banks.

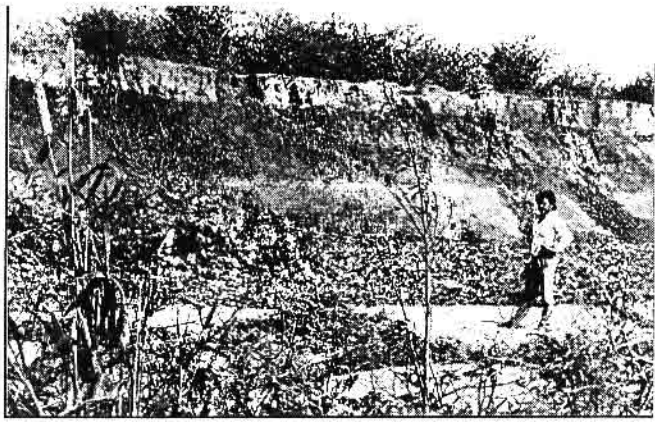


Fig. 5. This picture clearly shows how many layers of sand and silt the river has deposited. Rivers deposit sand and silt upto a long distance during floods. The river plain is formed by these layers of sand and soil. In the picture, guava trees can be seen on the banks of the river. Beds of watermelon can be seen on the sand.

cannot be grown on them. These crops need porous soil which does not retain moisture. Such crops also grow better on sloping land. Sugarcane also cannot be grown on such soil. Oil and sugar are, therefore, brought from neighbouring areas to be sold here.

Orchards on the River Banks

On the banks of the Tawa we saw several fruit trees and orchards. Lemon, mango, *ber*, guava, papaya and *jamun* were some of the trees growing on these plains. The farmers told us that soils near the river contain more sand. They are, therefore, more porous and do not retain moisture. Crops do not grow well on them. Hence, fruit trees are grown, the roots of which can penetrate the soil and draw out water from great depth. The soil close to the river is, therefore, very suitable for growing fruit trees (fig. 4 and 5).

- **What type of soil is found in your area, and what crops are grown on it? What crops are not cultivated in your area? Is the soil in your area not suitable for them?**

- **Fill in the Blanks -**

In Kotgaon, mostly _____ or _____ soil is found. _____, _____, _____ and _____ crops are grown on this, but _____, _____ and _____ cannot be grown here.

IRRIGATION

The type of crops grown and the number of crops raised in a year does not depend only on soil. Some crops require irrigation because the rains last only three to four months. Do the farmers of Kotgaon grow crops only during the rainy season? If not, how do they irrigate their crops during the other seasons?

Unirrigated Crops

Till about ten years ago there were only a few wells from which water was drawn with *moth* (leather bags) operated by a pair of bullocks. But not much land can be irrigated in this way. During most of the year, the river remains dry. So the river cannot be used to irrigate the land.

Because of these reasons, mostly kharif (monsoon) crops like maize, *bajra*, *jowar* (millets) and *tuar* were grown. Wheat used to be grown on whatever little land was irrigated in the *rabi* (winter) season. Wheat does grow without irrigation, but the yield is not very high. In the last few years things have changed very fast.

Dams and Canals

A large dam has been built on the Tawa. Water coming down the river during the rains is collected in this dam. Water from this dam

is used to irrigate large parts of Hoshangabad district.

- *Can this method be used to irrigate large areas in the hills? What could be the special difficulties in building canals in the hills?*

Even now, only a few fields are irrigated by canals from Tawa dam in Kotgaon. Most of the irrigation in Kotgaon is carried out through wells.

Wells

Usually it is easier to dig wells in the plains than in the hills or plateaus. On hills and plateaus one needs to dig into rocks to reach water. This is not needed in the plains. We were hence curious to know more about the wells in Kotgaon.

As Kotgaon is very near the river, water can be found by digging for only about eight metres. A lot of water is accumulated beneath the soil between the sand and pebbles. Digging a well costs only twenty thousand rupees in Kotgaon. It will cost much more in a plateau or hilly area where rock has to be blasted with dynamite.

- *In your area, what is found while on digging a well - rocks or sand?*

Ring Wells

There is one difficulty in digging a well in Kotgaon. After digging for about five to six feet there is sand. This sand keeps caving in as the well is being dug. To solve this problem,



Fig. 6. A Ring well

a new type of well is being built in recent years in Kotgaon and other villages. This is called a ring well (see fig. 6).

First, several rings of cement and concrete are made. They are then fixed into the well as it is being dug. Such rings prevent the sand from sliding into the well, and also serve as strong walls for the well. Wherever rings are used, the width of the well can also be kept small.

- *Are there any ring wells in your area?*

Motor Pumps

Water is drawn from the wells with the help of pumps, run by electricity or diesel engines. In this way, a well irrigates around 10 to 15 acres of land.

As the land is level and plain, water flows easily through narrow channels and reaches the fields. Even though a lot of water is used for irrigation, the wells do not run short of water. In Kotgaon there are more than 50 wells used for irrigation.

- *How is land irrigated in your area? How much land is irrigated? Compare with Kotgaon and discuss.*
- *Despite there being rivers and wells, not much land was irrigated in the past in Kotgaon. Why?*
- *Why is it easy to dig wells and construct canals in the plains?*
- *In Kotgaon, why are rings used instead of bricks for the walls of wells?*
- *Can you imagine what changes have occurred in agriculture in Kotgaon due to increase in irrigation in recent years?*

Irrigated Crops

Earlier, only maize, bajra and jowar used to be grown in Kotgaon in the rainy season. These crops do not require much water. However, nowadays fields can be irrigated. It has become easier to grow crops like paddy or soyabean in the kharif (rainy) season. These crops require a lot of water at the right time. They, therefore, cannot depend entirely on

rainfall.

Earlier, very little wheat could be grown in winter. Now, with the help of irrigation, wheat is grown in plenty. New high yielding varieties of wheat are being grown, which require lots of water. The output has also increased. Apart from wheat, gram and *masoor dal* are also grown in the *rabi* (winter) season.

Availability of plenty of water even in summer has enabled the farmers of Kotgaon to grow vegetables like tomato, brinjal, ladies finger and beans. Vegetables require a lot of water and have to be grown with care. These are sold in the markets and fetch high prices.

Even in summer, when the rivers are dry, vegetables are grown near the wells. Thus, summer, winter or monsoon, agriculture is carried out throughout the year in Kotgaon.



Fig. 7 : Wheat Harvest

- *What kind of changes would have taken place in the diet of the people of Kotgaon over the last few years?*
- *In your village, have there been any changes in the crops, work patterns of the people and their diet, with the advent of irrigation?*

Cultivation on Riverbed

In the picture of Tawa in fig. 2, you must have noticed a lot of sand on the river bed. In summer, some farmers grow different varieties of gourds - *lauki*, *tinda*, *torai*, *gilki*, cucumber, watermelon, musk melon and pumpkins. They use the river to water them. These vegetables are sold in distant markets.

Fill in the Table -

Crops of Kotgaon		
	<i>Before Irrigation</i>	<i>After Irrigation</i>
Summer		
Winter		
Rains		



Fig. 8. Vegetable farming in summer with the help of pump sets

Shortage of Fodder

We noticed that the peasants raise crops in all the land available in the village. There is very little pasture left. Nor are there enough trees or shrubs. So there must be very little fodder available for cattle. The farmers told us that there is indeed a shortage of green fodder for animals. The people of Kotgaon, therefore, do not keep much cattle. Only a few cows, bullocks and goats are kept for milk and for working on the fields. However very little milk is produced for sale.



Fig. 9. Growing vegetables and fruits on the riverbed

HOUSES AND SETTLEMENTS

Houses in Kotgaon are built next to each other. This is common in the villages of the plains. Here, the population is high and there is very little land available for building houses. The houses are built close together so that cultivation can be carried out on the remaining land.

- *Are the houses in the villages near you built in the same way?*

We noticed that the walls of the houses in Kotgaon were mostly made of mud, and the roofs were made of bamboo and wooden beams. Although some of the houses of the rich farmers were built of bricks, most of the houses were of mud and wattle. These are easily available in the locality.



Fig. 10. Houses built close together

Villages like Kotgaon situated on the plains produce much more than what is needed for domestic use by the farmers. Where do they sell their extra produce?

Due to abundance of water and fertility of the soil, the Narmada plain has a large number of villages. Many towns have also come up, like Hoshangabad, Babai, Itarsi, Bagra, Sohagpur and Piparia. Here, the population is very dense. The farmers sell their produce in these towns. There are also big *mandis* in many of these towns where traders from distant cities come to buy grain.

The farmers of Kotgaon do not have any problem in taking their produce to the market. Since the land is level, railway lines and roads are easily laid. Kotgaon is well connected by roads and the railway station is just a few kilometers away in Bagra.

Being well connected by roads, etc. is a typical feature of villages in the plains. You will see how the villages in the hills are not so fortunate in this respect.

Need for Labourers

There are several villages around Kotgaon in which agriculture is carried out. The labourers of Kotgaon, therefore, find work



Fig. 11. Adivasis from the hills harvesting crops in Kotgaon

very easily in their own and neighbouring villages. They also find work in small factories, like in the tile factory in Bagra. Here

labourers do not have to go to far away lands to find work.

This fact had come to our attention because we had heard that the adivasis living in the Satpura hills often come to the plains for "*chait*" (labour migration for harvesting). This means that there is so much work in the plains that the labourers from other areas come here to find work.

In recent years, harvester-combines are beginning to be hired to harvest the fields.

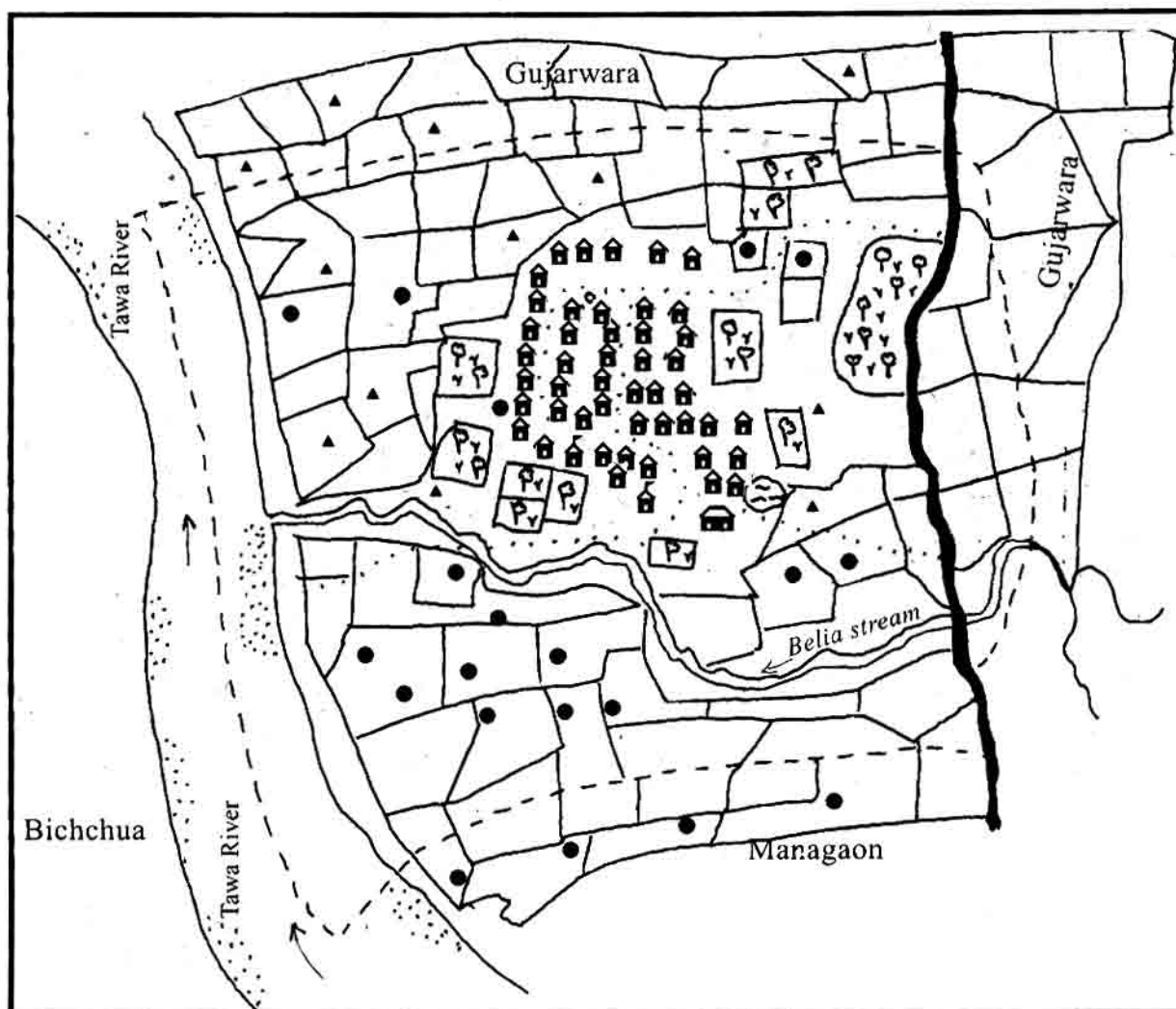
These harvesters cut the crop much faster than labourers can.

Have you ever seen a harvester? How many types of work can harvesters do at the same time? How will this affect the adivasi workers?

EXERCISES

1. On the plains of which river is Kotgaon located? What are the benefits of this river for agriculture?
2. Do you find water all the year round in the wells of Kotgaon? What crops are irrigated with well water, and in which season?
3. Why are fruit trees grown on the banks of rivers?
4. Why do the peasants of Kotgaon sell their produce?
5. Which are the markets where the peasants of Kotgaon sell their produce?
6. Write in two sentences why the labourers of Kotgaon do not have to go very far to find work.
7. a) Why is the soil fertile in the plains?
b) What are the advantages of plain, flat land mentioned in this chapter?
8. Compare irrigation from wells with irrigation from canals. Mention one advantage and one disadvantage of each of these methods of irrigation.
9. Correct the false sentences :
a) Peasants of Kotgaon are able to sell very little of their produce.
b) There are many villages and towns around Kotgaon.
c) The houses in Kotgaon are spread far apart.
d) It is difficult to lay down railway lines and roads in the plains.
e) The labourers of Kotgaon go far away in search of work.
10. Fill in the Blanks -
a) To prevent sandy soil from sliding into the well, _____ wells are built.
b) In Kotgaon, because of shortage of _____, there is very little sale of milk.

SKETCH-MAP OF KOTGAON VILLAGE



INDEX

	Village boundary		House		Pond
	Sand deposits		School		Tubewell
	Kutchi road		Temple		Well
	Metalled - pucca road		Orchard		
	River / stream		Field		

THE VILLAGE AND ITS BOUNDARY

Read the sketch-map of Kotgaon with the help of the index and answer these questions -

- * In which direction is the metalled (pucca) road from Kotgaon?*
- * What is shown inside Kotgaon?*
- * Are there more fields to the east of the settlement, or to the west of the settlement?*
- * How many wells and tube wells are there in Kotgaon?*
- * Are there more tube wells to the north of the Belia stream or to the south of it?*

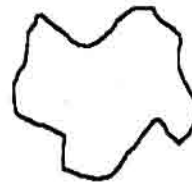
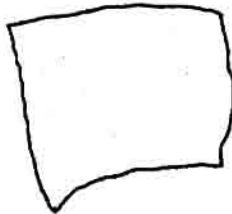
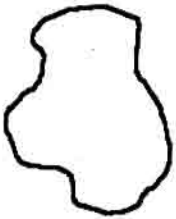
BOUNDARY OF THE VILLAGE

The village boundary of Kotgaon, skirting all around it, is shown on the map. Identify the symbol used to show the boundary on the map. Run your finger along the boundary of Kotgaon. Inside the boundary there are the fields of Kotgaon and outside the boundary there are the fields of neighbouring villages.

Notice that in the north the fields of Kotgaon and Gujarwara village adjoin each other.

- * The fields of which village are next to the fields of Kotgaon on the south?*
- * The fields of which village are situated to the east of Kotgaon village?*
- * How many wells of Managaon have been shown on the map?*

These are the boundaries of three villages. Which of these three figures resembles the boundaries of Kotgaon? Write 'Kotgaon' in the correct picture.



PAHAVADI - A VILLAGE IN THE HILLS

Look at the pictures in this chapter and discuss the differences between your locality and Pahavadi.

The Satpura Hills

The hills of Satpura lie to the south of Kotgaon. The Tawa river originates from here. A large number of streams and rivers also join the Tawa. You can see some of the streams from the hills joining the Tawa in the picture on page 87.

Let us visit the hills of Satpura to see how people live there. The tribal people living here leave their homes and go to far off villages and towns and work in the construction of roads and railways. Sometimes, they also go to the villages in the plains to harvest wheat.

- *Do people in your locality also go off to far away places to work?*

To reach the Satpura hills, you have to take the road leading from Hoshangabad to Betul. Look at the map of Madhya Pradesh and find out the direction in which we have to go. The Narmada plains extend upto a little distance from Itarsi.

From here the road and railway lines follow a zig-zag route up the hills. The slopes of the hills are covered with forests. In some places, there are patches of level ground, most of which are also covered with forests. Here we do not see vast stretches of cultivated fields like those on the plains of the Narmada.

Wherever there is level land in between the

hills, we come across patches of cultivation. Small villages can also be seen in such areas. In between these patches, the land is rugged, rocky and covered with forests. Forests still

remain on the slopes of these hills. In the plains, the forests have been cleared and in their place there are vast stretches of greener fields.

- *Write four main points of the above section.*

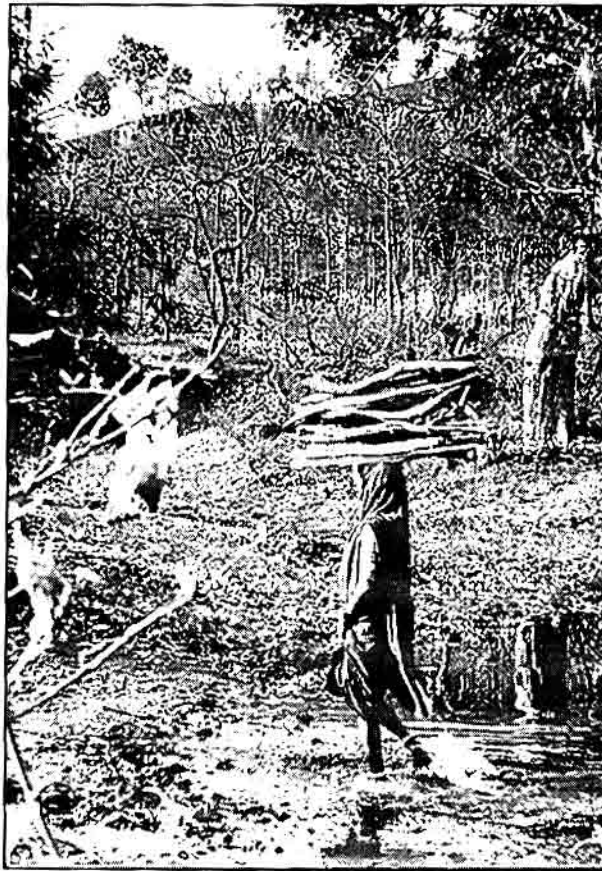


Fig. 1. Forests of the Satpuras

The Road to Pahavadi

Going south from Itarsi we cross bridges over several streams and rivers. About 50 kilometres from Itarsi, we come across the Machna river which is a tributary of the Tawa river. On the banks of the Machna lies the

town of Shahpur which is famous for its pots.

Shahpur is surrounded by hills and forests on all sides. Cutting through them is a mud road in the north-west, which goes to a village called Pahavadi.

The road to Pahavadi is rugged and uneven. Sometimes it descends into a dry stream bed. Most streams do not have bridges over them. During the rainy season, when these streams are filled with water, it becomes difficult to go from Shahpur to Pahavadi. Such streams carry mud, sand and leaves which finally reach the plains of the Narmada.

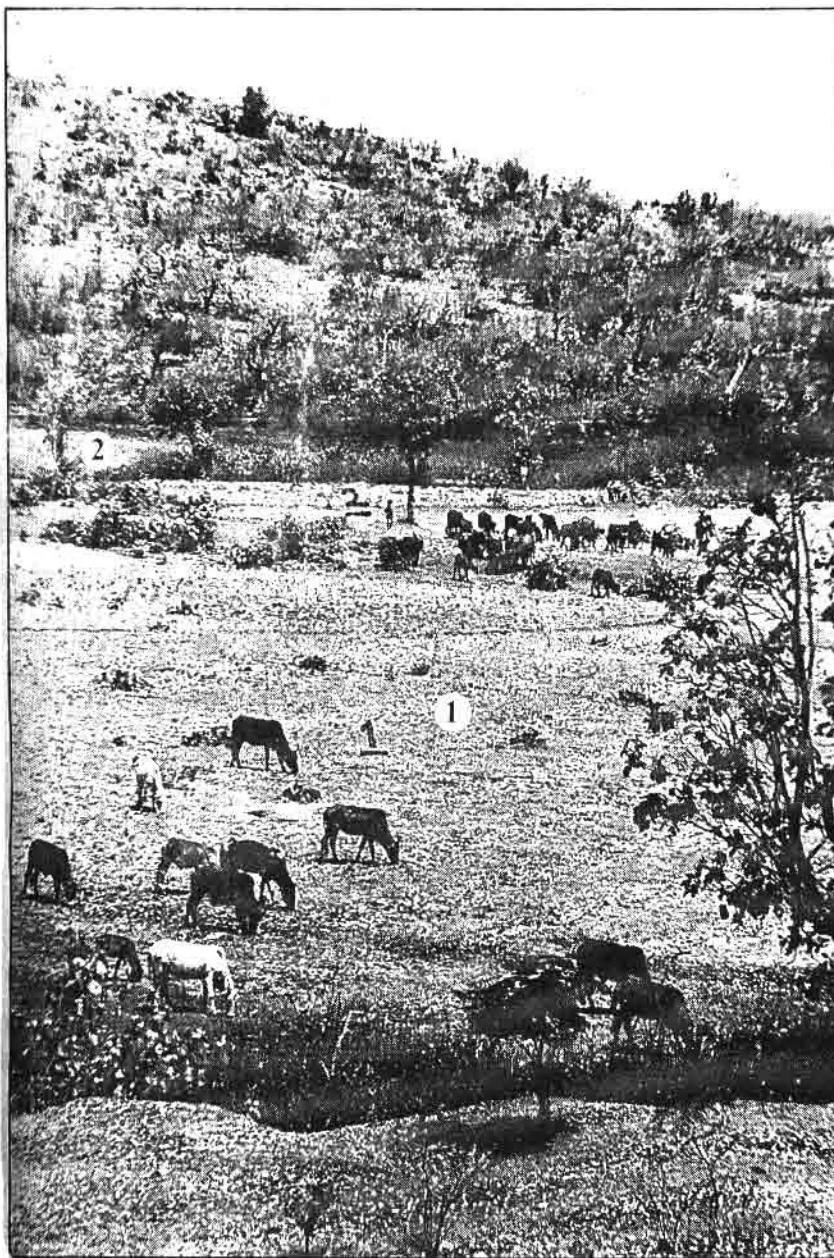


Fig. 2. Terrain of Pahavadi



Fig. 3. Rugged and rocky land

The Terrain of Pahavadi

See the land of Pahavadi in the picture. How is it different from that of Kotgaon? The fields of Pahavadi are uneven. One can see a few trees growing naturally in between the fields. Streams and small channels of water flow in low lying lands. They carry the fertile soil away from the fields and leave behind less fertile sandy soil with pebbles and stones. This soil is generally red and yellow. It is also thin layered. In the villages, level ground is seen only in those places which are away from the hills. The soil in these fields is black and clayey. It is brought here by the streams flowing down from the surrounding hills.

- *In figure 2, which number indicates the less fertile land? Which number indicates the fertile land?*

Soil differs from field to field in the hills. While there is black soil in one of the fields, a neighbouring one may have red or sandy soil.

- *Fill in the Blanks -*
 - *In Pahavadi, most of the land is sloping and the soil is ____.*
 - *Wherever the land is even, the soil is ____.*
- *Do you know what type of crops can be grown on sloping land? What crops are grown on plain land?*

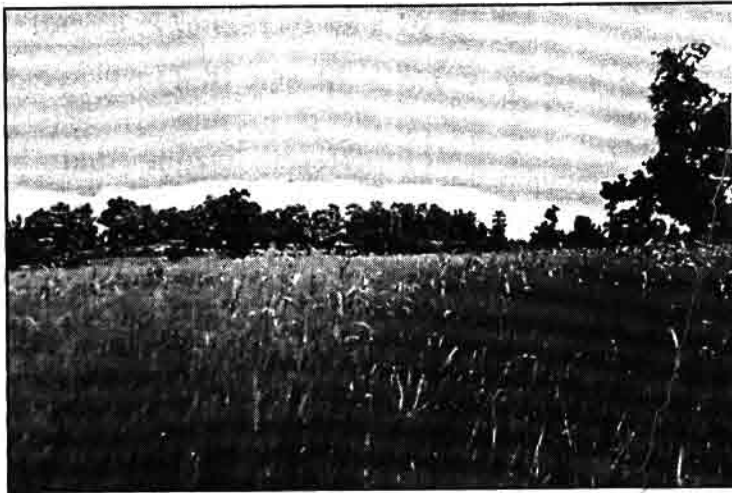


Fig. 4. Fields of 'kodon'

- Which crop would be grown more in Pahavadi - wheat or coarse grains like kodon and kutki?

CROPS OF PAHAVADI

Crops in the rainy season (*kharif*)

Most of the cultivation in Pahavadi is carried out in the rainy season. *Kodon*, *kutki*, *jowar*, *til*, etc. are the main crops grown here. These crops are grown on slopes that have sandy, red and yellow soil, because water is not retained on the slopes. These crops cannot be grown in black clayey soil because it retains moisture which rots their roots. In recent times, some peasants have started growing soyabean on such soil.

In the hills, livelihood from agriculture is

uncertain. The stony and sandy soil is not very productive and the rainfall is also not regular every year. Coarse grains like *kodon* and *kutki* require continuous rainfall for three months. Sudden and heavy rain or dry spells can ruin such crops. If that happens the farmers cannot even recover what they sow.

Apart from problems like lack of fertile soil and uncertain rainfall, there is another problem faced by the farmers of Pahavadi. The village is surrounded by forests inhabited by wild animals. These animals, especially wild boars, enter the fields and damage the crops. Sometimes they eat up the entire field, leaving behind nothing. To protect their fields, the farmers sit on high *machans* built in the middle of the field to guard against wild animals.

Since the soil is loose and rocky, crops cannot be cultivated every year. The field is left fallow every alternate year. Unless this is done, the soil will not be fertile enough for the next crop. Suppose a farmer owns twenty acres of land. He cultivates only ten acres of land one year and leaves the remaining ten acres fallow till the next year. In contrast to this, you must have noticed that in Kotgaon, two or three crops are raised every year from the same field.

- Where does the land give a better yield - in Kotgaon or Pahavadi?



Fig. 5. Kitchen garden at the back of a house. You can see the strong fence surrounding the garden where maize is growing

- **What are the four main difficulties in cultivating the slopes of Pahavadi?**

Kitchen Garden in the Backyard

Farmers in Pahavadi depend more on the produce of their backyard or kitchen gardens than the produce from the sloping fields.

Every farmer's house in Pahavadi has a backyard or clear space around the house. This space is surrounded by a strong fence made of wild bushes and shrubs. The space near the house is flat and the soil is also fertile. The peasants improve the quality of the soil by regularly adding compost and manure. Moreover, it is easier to protect the backyard against wild animals and birds.

Many farmers also have a well in their yard. They use the water from the well to irrigate the crops. They are thus able to grow corn, gourds like pumpkin and *gilki*, yam and other vegetables like beans in the rainy season.

With a little production of *kodon* and *kutki* from the fields and corn and vegetables from the kitchen garden, the villagers in Pahavadi are able to get food for a few months in a year.

- **Discuss the differences between backyard agriculture and agriculture on the slopes of Pahavadi.**

Winter (*rabi*) Crops

The loose, rocky soil of hills cannot retain moisture for long after the rainy season. Therefore the fields are left bare in winter and autumn. In winter, some farmers grow wheat in their back yard. Creepers of beans are also planted. Besides eating beans as a green vegetable, the seeds are dried and stored for later use.

Fig. 6. Digging a well in Pahavadi. You can see one person laboriously digging the rock with a rod and another man collecting the rubble in baskets. These baskets will be drawn up with the help of a rope and emptied outside. You can imagine how difficult, time consuming and expensive it would be to dig wells here. You can also see that despite having dug to such depth there is no sight of water in the well still.

Those who have flat land with black, clayey soil, and are able to irrigate their fields by some means or the other, can grow wheat, gram and *alsi* (linseed). In Kotgaon, however, these crops can be grown without irrigation as the soil there is able to retain moisture.

Fill in this table :-

Crops of Pahavadi		
	Rains	Winter
Fields on hill slopes		
Kitchen gardens		
Plain lands		

DRINKING WATER AND IRRIGATION

It is both difficult and expensive to dig wells in rocky and hilly areas. Here, the soil layer is not very thick. The rocks are exposed after digging just a few feet. Also, even after the rocks are broken and the well is dug, there may not be water in it. Imagine how difficult it must be to get drinking water.

Earlier there was only one well in Pahavadi. Now there are many hand pumps.





Fig. 7. Harvested wheat in the area irrigated by Chilasm Tekri dam.

So the situation has improved. There are about seven or eight wells in Pahavadi for the purpose of irrigation, but only three or four wells have water all the year round. Water is drawn from these wells with the help of 'moth' drawn by bullocks, and some of the wells have diesel pumps. Even though some of the houses in Pahavadi have electricity, they are not able to use it for irrigation. That is why there are very few irrigated fields in Pahavadi.

Apart from digging wells for irrigation, the villagers also collect water in small lakes or tanks. *Bandhs* are made with mud across the streams and rain water is collected here. Water is drawn from them with the help of pumps to irrigate the fields. Water is also conveyed to some fields through canals but since the land here is uneven and rugged, this is not possible for most fields.

There is a small tank called Chilasm Tekri near Pahavadi. The water from this tank is used to irrigate about 150 acres of land (figure 7).

- *What crops could be grown more easily on thin soil - kharif or rabi?*
- *Did you find small tanks around Kotgaon also?*
- *Why don't the people of Kotgaon make tanks and ponds?*
- *Why is it easier to make tanks in Pahavadi?*
- *From where, and in which season, do the tanks get filled with water?*

THE FORESTS OF SATPURA

There are valuable trees like teak in the forests of Satpura. Businessmen and contractors were felling these trees in large numbers because of the demand for wood in factories. The government, therefore, made a law prohibiting cutting trees and killing wild animals in the forests of Satpura. Now the forest department of the government cuts the old trees and plants new saplings. The cut logs of wood are stored in depots and auctioned to traders. Bhaunra, near Pahavadi, has a depot where a large number of big and small logs are stored. Government rules and restrictions relating to the forests have also affected the people of Pahavadi.

Adivasis of Pahavadi and Forest Produce

The Gonds, Korkus and Pardhans are some of the adivasi tribes of Pahavadi. These tribes live in small villages and have a deep and old relationship with the forests surrounding them. From very early times, they earned their livelihood from the forests, hunting wild animals and collecting flowers, fruits and roots. They also cultivated some grain and grazed their livestock in the forests.

Today their condition has changed. They do not have the freedom to collect whatever they require from the forests. They can collect only a headload of firewood for their own use, and nothing more than that. They have to get wood and bamboo from the government depot to construct houses. It has now become



Fig. 8. Picking tendu leaves

impossible for the tribal people to earn money by selling wood in the neighbouring town of Shahpur.

In the past, the adivasis earned their living by selling valuable forest products like *chironji*, *mahua*, lac, gum, honey, grass, etc. Now, however, these items have become government property. Now the tribal people require licenses from the government to collect these products.

The adivasis also earn their living by collecting *tendu* leaves. These leaves are used to make *beedis*.

Mahua

Mahua is the most important tree of these forests. Have you ever seen or eaten *mahua* flowers? They are sweet and have a strong smell. In April, when the *mahua* trees bloom, the whole forest smells fragrant. *Mahua* flowers are eaten both fresh as well as dry. The tribal people make several dishes out of *mahua*. There are several *mahua* trees around Pahavadi. A family can collect 2 to 3 quintals of *mahua* in one season. By selling this, they get some cash to buy necessities. The *mahua* seeds, called 'gulli', are ready by May-June. Oil is extracted from these seeds and sold. This oil is used in cooking and for making soap.

The people here are very dependent on the forests. The forests compensate for the poor agriculture in the mountains. By selling forest produce and labouring long hours in the forests, they earn money to buy food.

- **Why are the forests important to adivasis?**

- **Do the people of Kotgaon also depend so much on forests?**
- **After the forests were made into government property, what are the difficulties that people have had to face - in finding food, in finding building material for houses, in finding forest products to sell in the market. Make a list of these.**

Cattle Rearing

Most families in Pahavadi have five to six animals, mainly cows, oxen and buffaloes. Some people also rear goats and hens. In the past, these animals used to graze on forest land. Now a license is required from the government to graze cattle. One person in the village is in charge of taking the animals to the grazing grounds and bringing them back in the evening. There is no shortage of fodder for animals as in Kotgaon.

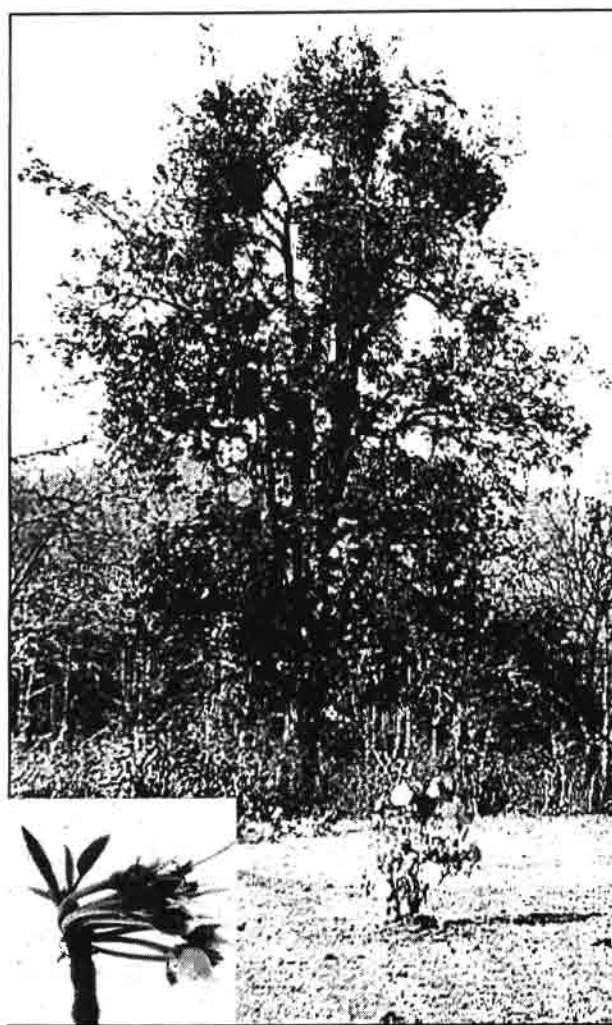


Fig. 9. Mahua tree and flowers



Fig. 10. Houses of Pahavadi. Note the use of mud, wood and hand-made roof tiles

Cattle rearing and poultry farming in Pahavadi is on the increase. Eggs, milk and goats are sold in the market. Milk is sold in Shahpur, but eggs are even sent to Sarni some 30 km away. The local breed of cows is of a very small size and yields little milk.

Houses

Let us see what materials are used by the people of Pahavadi to construct houses. In Kotgaon, houses are mainly made of mud, mud bricks and tiles. In Pahavadi, houses are mainly made of wood. Most of the houses have walls made of bamboos and mud plaster. The roof is made of bamboo sticks which are tied together. The sticks are tied by rope made from the roots of a tree. Some people have also started using wires. Tiles are small and of irregular shapes. They are made locally. You

probably remember that there is a factory of tiles in Bagra, so the people of Kotgaon get big, baked tiles. However, in Pahavadi the tiles are made locally by hand.

PROBLEMS OF LIVELIHOOD

The fields of Pahavadi cannot provide sufficient sustenance to the people. Earlier this was supplemented by what they collected from the forest; but today due to the cutting down of forests even this is not enough. Hence the people from such villages in the hills are forced to look for work in the plains villages during the sowing and harvesting period. Some people also go to the towns of Shahpur and Bhaunra for work. In Bhaunra, there is a nursery for seedlings and a timber depot. Some people also find employment as casual workers in road construction and railways.

EXERCISES

1. What problems of transport do the people of Pahavadi face?
2. Why are the people of Pahavadi not able to cultivate the same fields every year? Answer in four lines.
3. Why is it difficult and expensive to dig wells in mountainous areas like Pahavadi?
4. Unlike Kotgaon, why does Pahavadi not sell a lot of produce in the market?
5. Write down the differences between plain areas and hills in ten sentences.
6. What differences do you find between fig. 10 of Kotgaon and fig. 10 of Pahavadi? What are the reasons for these differences?
7. How can the production of milk, eggs and meat be improved in Pahavadi?

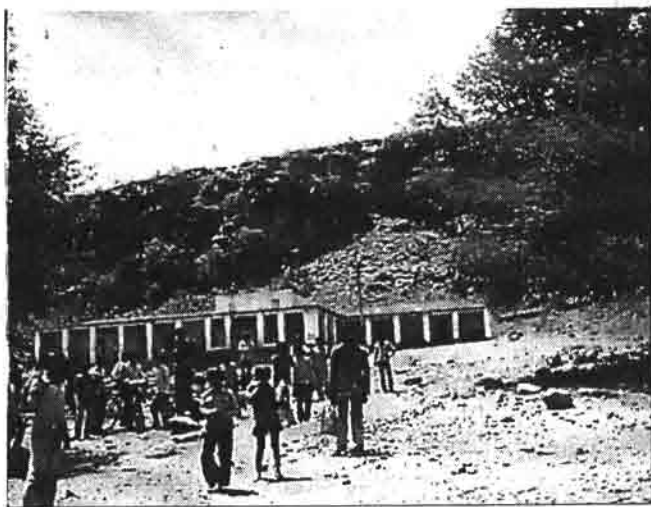


Fig. 2. Rocks, stones and pebbles broken from the escarpment

escarpment of the plateau is also rocky and uneven. Here there is only a thin layer of sandy soil mixed with stones. We had also seen a similar landscape in Pahavadi. Indeed, it is difficult to imagine any crop growing on such soils!

These rocky parts of the plateau have a distinct look. They are usually covered with trees, bushes and grass.

On the flat plain lands of the plateau - away from the slopes and escarpment - one finds black, clayey soil. This fine-grained black soil is brought along with water and deposited on the plain land. Underneath the soil there are black rocks, which also break down to form fine black soil. This soil is very fertile. If irrigation is available, this soil can yield two crops in a year.

- *In Figure 1, where would you find the following types of soil? Choose the correct answer.*

(Rocky soil / black soil / no soil)

At 'A' _____ is found.

At 'B' _____ is found.

At 'C' _____ is found.

- *Write down three differences between a plateau and a plain.*
- *Where would you find more flat land - on plains, on the hills or on a plateau?*

BALAMPUR - VILLAGE ON THE FOOT OF THE ESCARPMENT

Terrain of Balampur

Balampur is a village situated below the escarpment of the Bhopal plateau. One can reach Balampur by getting off the road to Vidisha on to a kutchha road. This village is situated on the foot of the escarpment. In Figure 2, you can see the huge rocks and broken stones of the escarpment above the village.

During the rainy season, rivulets swell with water and carry pebbles and sand down the escarpment and deposit them on the fields near the slopes.

- *How will this affect the soil - will it make the soil more fertile?*

At some distance from the escarpment, on the flat lands of the village, there is clayey black soil.

Let us now have a look at how the people of this village on the plateau carry out agriculture on these soils.

Tanks and Bandhs

Look at Balampur village in fig. 3. Try and identify the roads, wells, houses, tanks and *bandhs* in the picture. A few streams flowing down the escarpment can also be seen. A *bandh* has been raised across the stream. The water of the stream collects upstream of the embankment and forms a tank.

- *In fig. 3, how many tanks and bandhs can be seen? On the flat plains of Kotgaon, tanks were not made in this way. Compared to Balampur, why is it more difficult to make tanks in Kotgaon?*

One of the advantages of these tanks is that rain water can be collected in them and used for irrigation. They have another advantage as well. They prevent the soil from getting eroded and also prevent pebbles and stones from

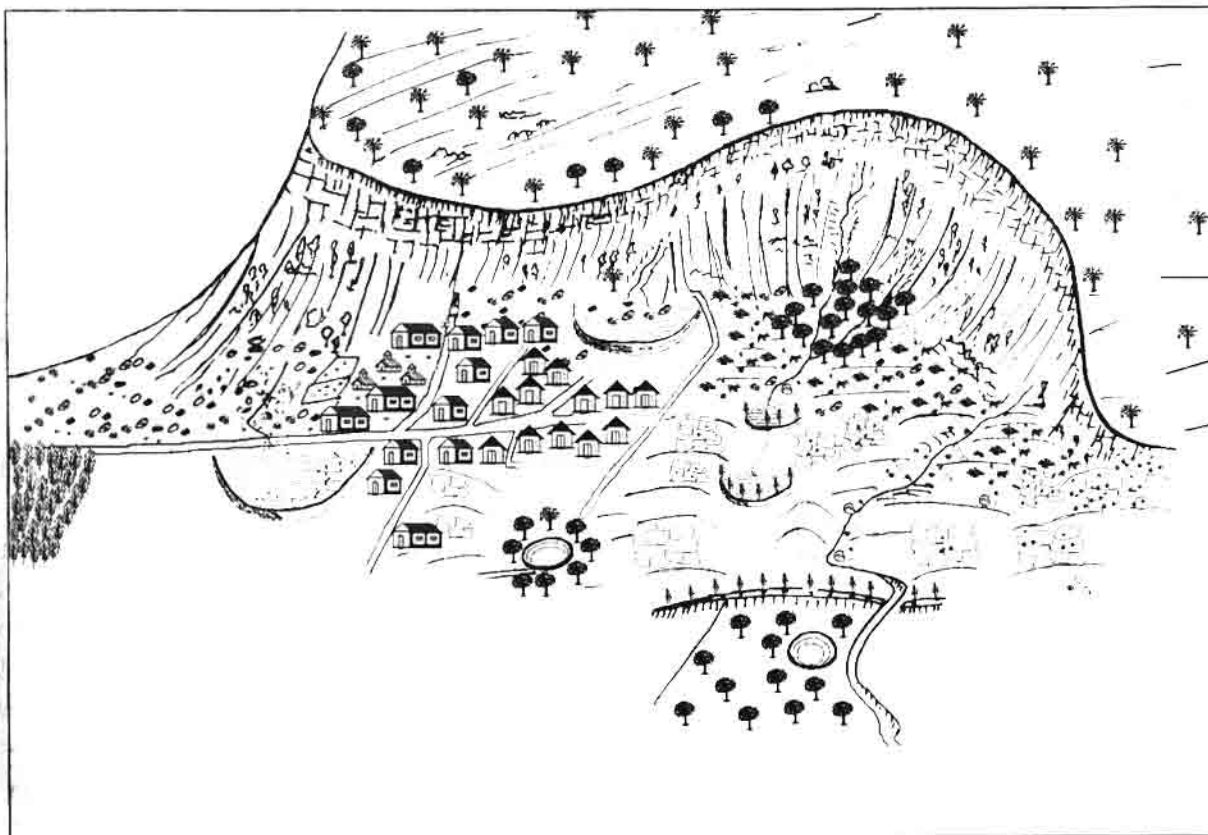


Fig. 3. Balampur village and its fields

spreading on the fields. You know that pebbles, sand and stones from the plateau flow along with the rivers and streams and get spread on the fields. There is also a possibility of swift flowing streams washing away the soil on the fields near the escarpment. Due to the bandh, pebbles and sand collect in the tank and the soil from the fields is saved from being washed away.

A cultivator of Balampur has built a small bandh on his land and has thus created a tank. The bandh helps to collect rain water and allows the water to seep into the soil. Pebbles and stones are also prevented from spreading on his field. Soil erosion, is too, prevented. fig. 3 shows this *bandh* on the field. In this way, peasants have used the terrain of the land to their advantage to water their fields.

- *In the land adjacent to the escarpment, the streams spread _____ and _____ flows down along with the stream. (soil, pebbles and stones)*
- *Tanks have been made _____ the escarpment. (above, below, in the middle of)*

- *To make tanks _____ (bandhs were constructed, soil was dug)*
- *Because of water collected in the bandh, the _____ remains moist, one gets water for _____ and _____ do not spread on the fields. (irrigation, soil, pebbles and stones)*
- *In fig. 3, mark 'x' on land where there are slopes and rocky fields and 'y' where clayey soil is available.*

Wells

You have just read how undulating lands can be irrigated by constructing bandhs. However, such tanks can irrigate only a part of the village lands.

The farmers of Balampur have dug wells to irrigate more land. Wells for irrigation have been dug only in recent years though some had been used in the past for drinking water.

Beneath the layer of soil there is hard rock. It has to be blown apart with the help of explosives. Even after boring through the rock, one does not always find water. Ground water occurs in the cracks in the rocks. If these water

bearing cracks open into the well then water springs out. Often, however deep one may dig, such cracks may not open into the well and there may not be enough water to irrigate. In order to ensure that the cracks filled with ground water open into the well people dig wells with a large diameter. Water is available at a depth of 30-40 feet. Digging such a deep and wide well in hard rock is both difficult and expensive.

According to the farmers of Balampur, there are only 4 to 5 wells in the village which can be used for irrigation. One well irrigates about 4 to 6 acres of land. You can see how difficult it is to irrigate lands in the plateau villages. Villages situated in the Narmada plains have so much water that they can irrigate large tracts of land. However, only a small part of the lands in the villages on the plateau can be irrigated

There is another method of irrigation on the plateau - the tube well. But at the moment this method is not widespread in Balampur.

• **Why is it difficult to irrigate fields in Balampur? Choose the right answer from the following:**

- *This region does not receive much rainfall.*
- *One cannot construct dams and tanks in this region.*
- *It is difficult to dig wells in this region.*
- *One cannot dig tube wells in this region.*
- *People of this area are very poor.*
- **What are the similarities in the difficulties in irrigation faced in Pahavadi and Balampur?**

AGRICULTURE

You have read above that the soil of Balampur is fertile in some areas and rocky in others. You have also seen that in this area, little irrigation is possible. Come, let us now see how cultivation is carried out in such a region.

• **Can you guess whether agriculture would be better in Balampur or Pahavadi?**

Rabi Crops

The principal crops grown on the Bhopal-Vidisha plateau are *rabi* crops. In Balampur, too, most of the land is under winter crops. gram, other *dals* and wheat are among the *rabi* crops sown here.

As there is little irrigation possible, the moisture left in the soil after the monsoon is utilised for growing crops. Peasants cannot irrigate the land much, but they try to keep the soil fertile by rotating the crops. Every year they grow different crops in the same field. They grow gram and wheat alternately every year. Do you know why crop rotation is practiced? If only one crop like wheat is grown, the fertility of the soil decreases. If gram and other pulses are grown, nutrients accumulate around the roots and make the soil fertile.

Kharif Crops

Balampur receives sufficient rainfall. Yet peasants do not grow *kharif* (monsoon) crops. Why? According to the peasants, the black clayey soil absorbs a lot of water. If maize and *jowar* are planted in monsoon, their roots start rotting and the yield is poor. So *kharif* crops like maize and *jowar* are sown only on sandy soils or sloping lands which do not have the black clayey soil. However, no crops are raised on the black soil in the *kharif* season.

There is another reason for sowing fewer *kharif* crops. If the peasants of Balampur sow crops in the rainy season, then there will be no moisture left in the soil to grow *rabi* crops like wheat and gram.

Some farmers who have facilities for irrigation grow *kharif* crops like soyabean and *jowar* on their lands. They first harvest the *kharif* crops and then irrigate the land. Then they sow *rabi* crops like wheat and gram. If facilities for irrigation are available, the peasants of Balampur can grow two crops in a year and increase their production.

• **Choose the right answer -**

- *Most crops in Balampur are grown during (summer / winter / monsoon).*
- *How are most of the crops grown in Balampur (with the help of irrigation / with rain water / with the help of soil moisture).*
- *What kind of soil do you find in Balampur - (black clayey soil / sandy soil / alluvial soil).*
- *In black soil, water is (absorbed / not absorbed)*

• **Fill in the blanks -**

- *In rainy season _____ and _____ crops are not sown on clayey soil because _____*
- *Monsoon crops are sown on land that is _____.*

Gradually, the trees were cut down. Now most of the forests have been cut down and people only go there to pick tendu leaves and twigs for making small baskets. In Balampur there are two families of bamboo-workers who still make baskets. But they cannot bring bamboo from the forest. They have to buy bamboo from the market in Bhopal.

Plantation

Trees are being planted near Balampur in the forests which were earlier destroyed (Fig. 4). For this purpose, a government nursery has been set up in the village. Here saplings for timber, fruit trees and bamboo are being grown. During the monsoon when trees are being planted, about 100 to 300 people of the village get employment. In other seasons, too, about 25 to 30 people find employment in the nursery.

One farmer has planted trees on the rocky part of his land situated below the escarpment, so that he can profit by selling timber etc. Can you identify the plantation in fig. 3?

- ***What are the benefits obtained by the people of Balampur from the forests and the nursery?***

Animal Husbandry

Like Kotgaon, Balampur has a shortage of pastures. In the nearby forest, trees are being planted, so animals cannot be taken there for grazing. Only hay is available as fodder, and this, too, is not sufficient. Generally, the villagers rear animals only for working in the fields and for milk for their domestic needs.

DEFORESTATION AND AFFORESTATION

When there are difficulties in agriculture, the importance of other means of livelihood increases. On the rocky slopes of the plateau agriculture cannot be practiced, but people derive benefits from the forests covering such areas.

According to the elders of Balampur, 25 years ago, there were dense forests and grasslands covering the plateau and escarpment above the village. Sambar, chital, bears, leopards, tigers, etc. were found here. People used to come here from Bhopal to hunt. Villagers also used to hunt animals. They also used to gather various things available in the forests and sell them.

Houses of Balampur

The older houses of Balampur are made of timber. In fig. 5, notice where wood has been used in the construction. Tiles are placed over a framework of wood and bamboo. These tiles



Fig. 4. Afforestation in Balampur

are made by the potters or the house-owners themselves. The walls are built of stone and cemented with clay. The flooring is also of stones because stone is easily available locally. In some houses the roofs, too, are made of stone slabs.

This was the practice in older times when there was no restriction on collecting wood and bamboo from the nearby forest. Houses are still being made in Balampur, but out of what? Figure 6 shows a house being built. Walls are made of stone and on top of the walls stone beams have been placed.

According to the residents of Balampur, the stones for making the walls are obtained by quarrying stone slabs from the escarpment of the plateau. See how the people of this region benefit from the escarpment of the plateau! But long slabs of stone are not available here. These come from the quarries of Raisen and Vidisha. Some families in Balampur also make a living by making grinding stones and other items out of the escarpment rock.

ROADS AND MARKETS

Balampur is situated on the road between Bhopal and Vidisha. There is a small railway station called Sukhi Sewaniya on the line between these two places. From this station one has to travel 7 kilometres to reach Balampur. Before the railway lines were laid, people must have had a tough time trying to reach the town! Under such conditions, selling vegetables and carrying home things brought from the market must have been very difficult.



Fig. 5. Tiles atop wooden beams

Thirty five years ago, an unmetalled road was constructed, on which bullock carts started travelling. But it was still difficult for trucks and buses to commute. Now, proper metalled roads have been constructed. How do peasants gain from this? The market in Bhopal is very big and it also has a large vegetable market. Those peasants who have vegetables to sell, travel to Bhopal to sell their them. If they want to sell only a few vegetables and buy a few necessities, they go to nearby Diwanganj which is on the road to Vidisha.

You had read that roads travel in four directions from Kotgaon. Near Balampur there is only one road and railway line. The settlement of Balampur is connected only in two directions - on the south with Bhopal and on the north with Vidisha. If you stand there and look towards the east and west, you will see only high escarpments, rocks and slopes, bushes and small trees. There are also some small settlements to the east and west, but nature has made it very difficult to construct roads to traverse this uneven terrain.



Fig. 6. Stone beams being laid for the roof of a new house

EXERCISES

1. Under which sub-titles of this chapter can the answers to these questions be found? Match the following -
 - a) How are the roofs of the houses in Balampur constructed - *Tanks and bandhs*
 - b) Besides cultivation, what else do the people of Balampur do - *Terrain of Balampur*
 - c) Where on a plateau would you find pebbles mixed with the soil - *Deforestation and Afforestation*
 - d) Where would you find forests on a plateau - *Houses of Balampur*
2. What do you see in Fig. 3 ? Describe the scene in 5 or 6 sentences.
3. What are the difficulties faced by the peasants of Balampur in trying to grow two crops in a year? Why are these difficulties not present in Kotgaon?
4. Why is it difficult and expensive for villagers to dig wells in Balampur?
5. Quite a few residents of Balampur make their houses with stones instead of using timber, bricks and tiles. Why?
6. What are the physical barriers on the east and west of Balampur?
7. What are the differences between the houses of Kotgaon and Balampur?
8. What are the similarities between the villages of Balampur and Pahavadi in the following matters:
 - Physical features
 - Soil
 - Wells
 - Tanks and bandhs
9. Mention three advantages which the people of Balampur obtain from the escarpment of the plateau.
10. Describe the problems in building roads and railway lines on the plateau.

CHAPTER 7

MAP OF THE *TEHSIL*

Some weeks ago you had made a map of your classroom. You had surveyed the classroom, measured it and prepared a map using a scale of measurement and symbols. All maps, whether of villages or towns or countries, are prepared by similar methods. Today we shall study the map of your *tehsil* or block.

The teacher should divide the class into groups of 5 or 6 students each. Provide each group with the map of the *tehsil*. One student from each group should be ready with a pen and notebook to write down the answers to the following questions.

Your Village / Town

- *First of all, identify your town/village on the map. Is the boundary of your town/village shown by any symbol?*
- *Draw the shape of your town/village in the notebook after having a close look at the map.*
- *Are the shapes of nearby towns/villages similar to yours?*
- *Have you ever thought about the shape of your village/town? Do you know where the boundary of your village/town comes closest to your school?*
- *Go with your teacher to the place where the limit of your town/village ends and the other town/village begins. What is the name of the other town/village? Locate on the map other towns and villages that you know of.*

Index

From the map of the *tehsil*, not only can the locations of villages/towns in the *tehsil* be found, but also locations of schools, post-offices, railway stations, kutchra roads and pucca roads, railway lines, etc. All these are depicted by certain symbols. Go through the index and find out the symbols used for these.

ANSWER THESE QUESTIONS

Roads and Railways

- *Does any railway line pass through your tehsil? If yes, name the railway stations in your tehsil.*

Rivers and Forests

1. *Which rivers/streams flow through your tehsil?*
2. *In which direction does the river flow?*
3. *Name five villages situated on the banks of that river.*
4. *Is some portion of your tehsil still under forest cover? If yes, name five villages located within the forest.*
5. *How many villages have forest check-posts? What is the purpose of forest check-posts?*

Services

Not all villages have services like hospitals and schools. Some villages do have schools, but only a few have post-offices or primary health centres. People go to particular villages for the weekly market. Let us find out from the map which village has what facility.

1. Name four places which have both a post-office and a school.
2. In your tehsil, on which days are weekly markets held and at which places? Fill in the table given below -

Weekly Markets in My Tehsil

<i>Sunday</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>	<i>Saturday</i>

3. Name the towns/cities of your tehsil.
4. What are the facilities in those towns/cities, which are not generally available in villages? Look carefully at the map and answer.

Boundary of the Tehsil

- You have answered the above questions on the basis of the map. Which area does the map show?

Suppose you are travelling by bus on a road shown on the map. You reach the last village on the road. The bus goes further on that road and reaches another village. Why is that stretch of the road and village not shown on the map? What is the difference between the symbols of boundaries of other villages and that last village? This symbol shows the boundary of your *tehsil*. Villages that come after this do not fall within your *tehsil*, and that is why they are not shown on the map of your *tehsil*.

- See whether the boundary of your tehsil is depicted by the same symbol on all sides.
- The officer who is in charge of towns/ cities and villages of your tehsil is called the *Tehsildar*.
- Where is the office of your tehsil? For what purpose do people go there?

A NOTE FOR THE TEACHER:

These questions are suggestive. Please look at the map carefully and formulate new questions.

If you are living in a town or a city try to get a map of your town and make similar questions on that map and try to look for the answers.

CHAPTER 8

THE EARTH AND THE GLOBE

The Earth Is a Sphere

You must have learnt in your earlier classes that the earth is like a ball or a sphere and also seen pictures of it. However, looking at it from where we stand the earth does not look round. This is because the earth is so big that we can never see the whole of the earth standing on it. Indeed, we have to go out into the sky, into the distant space to see the entire earth. We can go all the way to the moon and see the earth.

Yes, several people who have gone up by rockets deep into space, have seen the earth from there. As we are able to see the moon and sun from the earth, in the same way, the earth, like the moon, seems like a ball hanging in the sky. A major portion of the earth looks blue. This is the colour of the oceans. Large masses of land are also visible. We live on these land masses. Some white patches of clouds are also seen floating around. All this can be seen in the photographs of the earth taken from space.

Given below are two photographs of the earth as seen from the moon! You can see the earth 'rising' over the landscape of the moon. Only a portion of the earth is visible - only that portion will be visible from the moon which faces the sun. The other portion of the earth which is not visible is not facing the sun and hence will be having night.

LAND MASSES AND WATER BODIES

There are huge masses of land on the earth. Surrounding the land are huge water bodies. The masses of land are called continents and the enormous water bodies are called oceans.

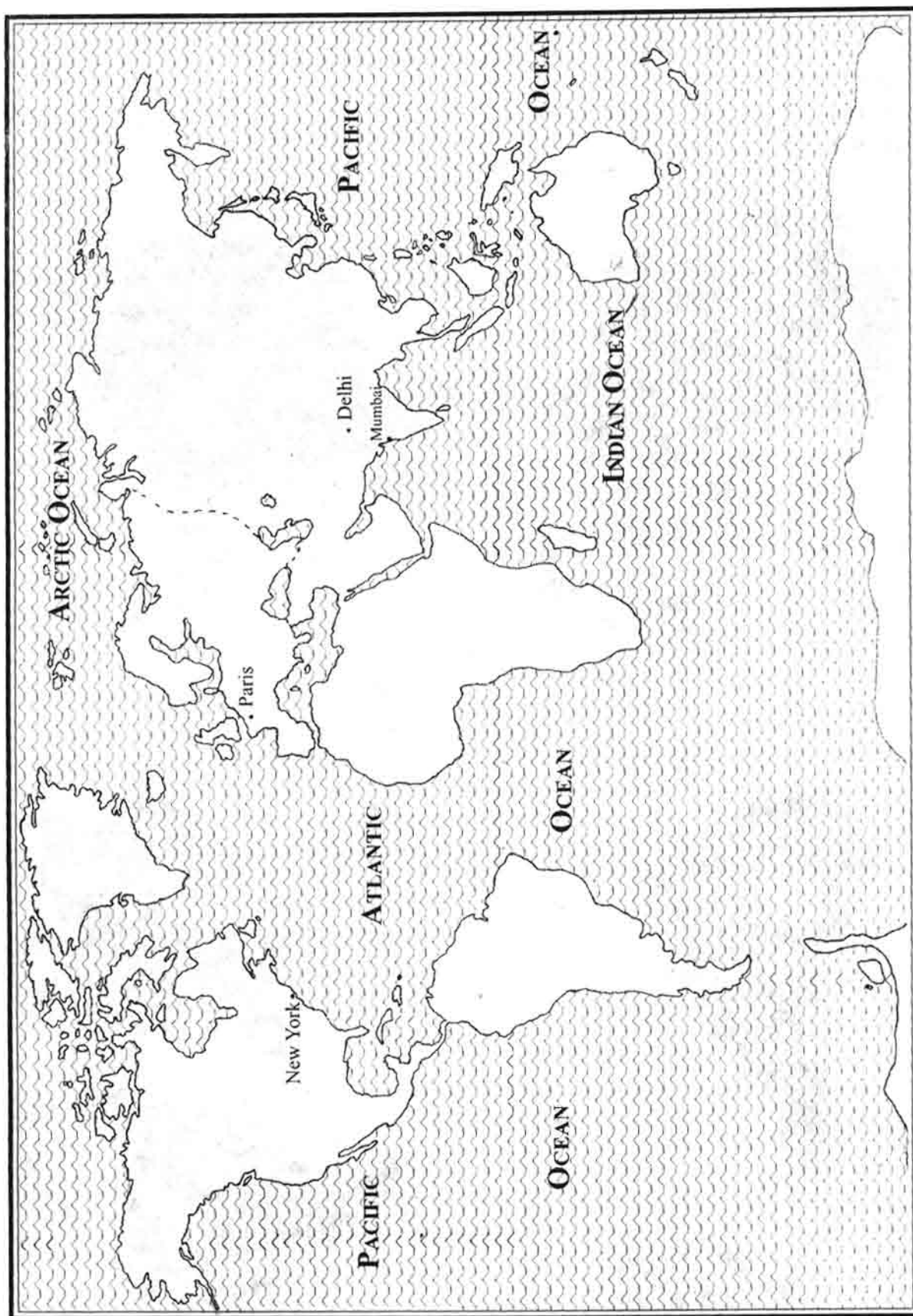
Look at the map of the world on page 115, in which all the continents and oceans are shown. The oceans are shown by wavy patterns.

- *Shade the oceans blue. The rest are land masses. Colour them by pencil. Now you can see the distribution of land and water on the earth.*



Fig. 1 & 2 Earthrise over the moon.

MAP 1. WORLD - LAND AND WATER ON THE EARTH

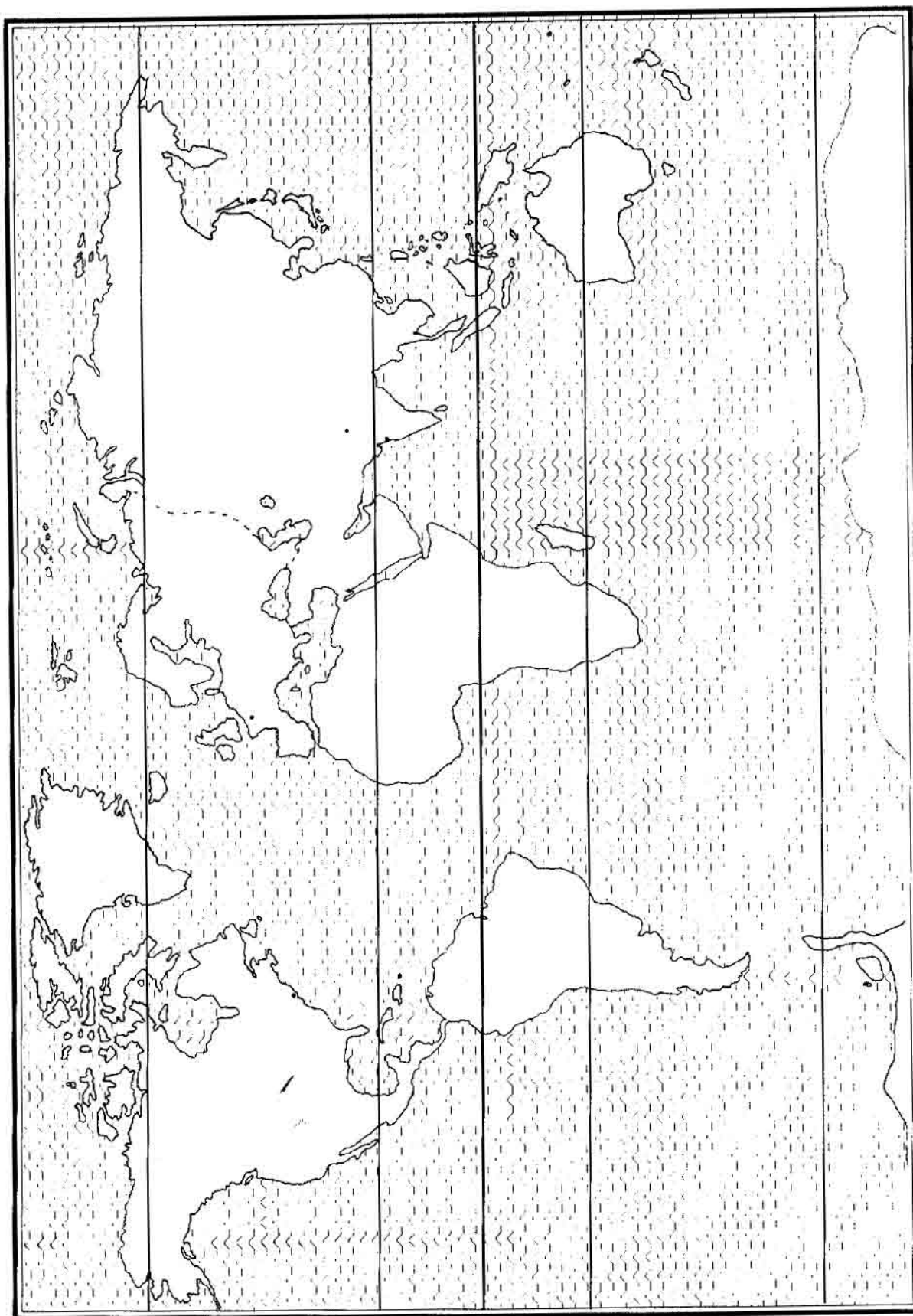


Continents and Oceans

There are seven continents on the earth. The shapes of some of the continents are given here along with their names. With the help of these figures identify the continents on Map 2 given on the next page. Colour each continent in a different shade and also write down its name on the map. You will not find the figure of Antarctica among these. Look for Antarctica on the globe. It is the southern-most continent.



MAP 2. WORLD - CONTINENTS AND OCEANS



Almost every continent has many mountain ranges, plateaus and plains, rivers and lakes. They also have several countries in which millions of people live. You will read about Asia and some of its countries in the following chapters.

- *See the names of oceans in Map 1 and write them on Map 2 in the proper places.*
- *Have you ever been to the seaside? Can you cross an ocean or a sea the way you cross a lake or a pond?*

Oceans are quite huge and deep. Winds whip up very high waves on them. We need large ships to travel on oceans. It takes many weeks to sail from one end to the other. For days together, no land is visible, only vast stretches of water. There are many pictures of ships shown in this book. Look at them.

- *If you have to travel from Delhi to Paris, can you go by land or do you have to cross any sea?*
- *Which continent did you start from and to which continent did you go? Did you cross any ocean? Name it.*
- *If you have to travel from Mumbai to New York, is it possible to go via a land route?*
- *Trace the routes with your finger on the map.*

GLOBE

A globe is a model of the earth, just as you would make a small bullock-cart using clay. All the countries of the world are shown by different colours on the globe. The oceans are shown blue.

Keep your finger on India and take it forward in any direction, go round the globe and bring it back to the same place. Only you must not take your finger off the globe. All the students can do this activity choosing any country to begin with. Actually the earth is also like that; you can start from any place travel round the earth and return to the starting place.

Equator, Tropic of Cancer, Tropic of Capricorn and the Polar Circle

While looking at the globe you must have noticed that there are several horizontal and vertical lines on the globe. What are these? These lines are there to help us to locate a place on the globe. They are not really lines drawn on the earth but imaginary lines drawn only on globes and maps. The horizontal lines drawn from east to west are called 'Latitudes'. The vertical lines drawn from the north to south are called 'Longitudes'. With the help of these lines we can locate any place on the earth.

To denote the exact half of the earth, a thick black line is drawn on the globe. It is called the 'Equator'. Find the Equator on the globe. This line divides the globe into two halves - northern and southern. The two halves are called the Northern Hemisphere and the Southern Hemisphere. The Northern Hemisphere extends from the Equator to the North Pole and the Southern Hemisphere extends from the Equator to the South Pole.

- *Name the continents through which the Equator passes.*
- *Find a line called the Tropic of Cancer and a line called the Tropic of Capricorn, to the north and south of the Equator, respectively. Run your finger along the two Tropics and note the names of the continents that they pass through.*
- *Which of these lines passes through India?*
- *Is India situated to the north or the south of the Equator?*

If you move further northwards of the Tropic of Cancer you will come across the Polar Circle. There is another Polar Circle to the south of the Tropic of Capricorn.

The Poles

You would have already noticed that the two ends of the earth are a little flat. These are called the Poles. The northern end is the

North Pole and the southern end is the South Pole.

- *Locate the Poles on the globe.*
- *Name two places near each of the two Poles.*

Cold and Hot Regions on the Earth

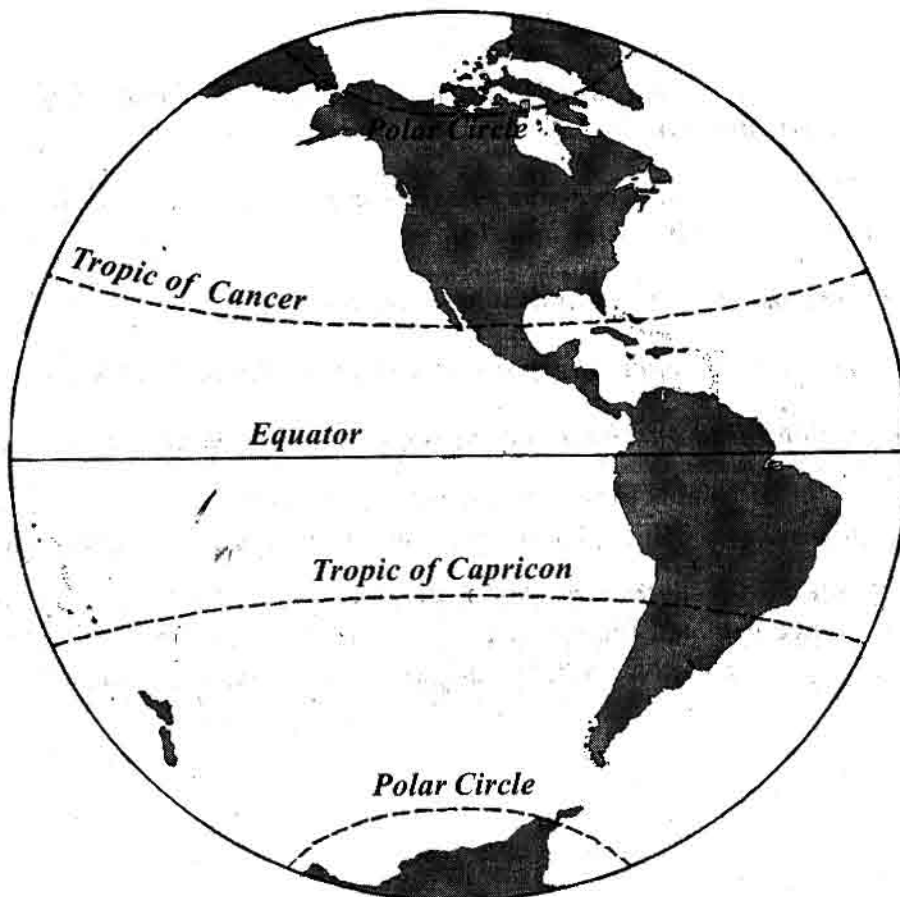
The Poles are covered with ice all round the year. The 'Polar region' which extends from the Poles to the Polar Circles remains very cold all through the year.

As you move from the Polar Circles towards the Equator it gets warmer. The region near the Equator is hot all through the year and there is also a lot of rain during the year. This region is known as the 'Tropical Region'.

The region between the Tropic of Cancer and the Polar Circle is neither too hot nor too cold. This is the 'Temperate Region'. There is also a temperate region to the south of the Tropic of Capricorn.

In the following lessons you will read more about the places and peoples living in these different regions.

- *The equator lies to the _____ of the North Pole and to the _____ of the South Pole.*
- *Which of these is correct?*
 - *Australia is between the Equator and the Tropic of Cancer.*
 - *Asia starts at the North Pole and ends at the Tropic of Cancer.*
 - *North America is near the South Pole.*
 - *The Tropic of Capricorn passes through South America.*
 - *Equator, Tropic of Cancer and Tropic of Capricorn pass through Africa.*
- *In the figure given below shade the Tropic, Temperate and Polar regions with different colours and write their names in the right places.*



CHAPTER 9

ASIA

Let us read about the continent of Asia and the oceans around it. India is a part of Asia.

Compare the size of Asia with that of the other continents. Is there any continent larger than Asia?

Hang the map of Asia on the wall. There are many countries in Asia, besides India. These have been shown with different colours on the map.

What symbol has been used to show the boundaries between countries?

Taking help from Map 1, fill in the names of the countries of Asia in Map 2 and colour them in different colours.

Look at the map carefully and answer the following questions -

Which is the largest country?

Make a list of India's neighbouring countries :

- countries to the north of India -
- countries to the east of India -
- countries to the west of India -
- countries to the south of India -

You have seen that Asia is surrounded by oceans. Name these oceans. Locate their names in Map 1 and fill them up in Map 2.

You must have read that there are many islands in the oceans near India. An island is a piece of land surrounded by water on all sides.

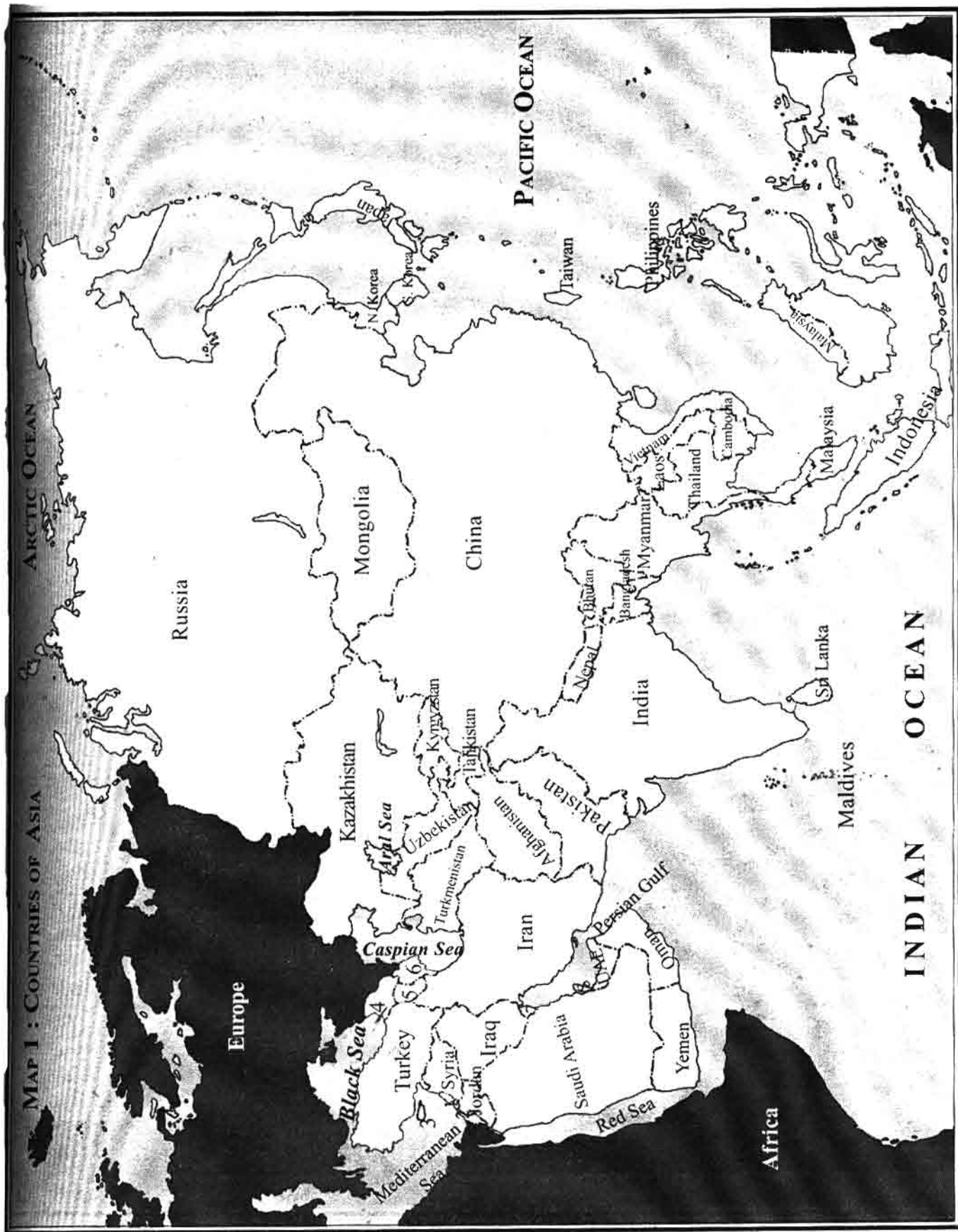
Some islands are also a part of India. Which are these?

Similarly, there are many chains (groups) of islands in South-East Asia.

Look at the map and find out the names of some of these island chains.

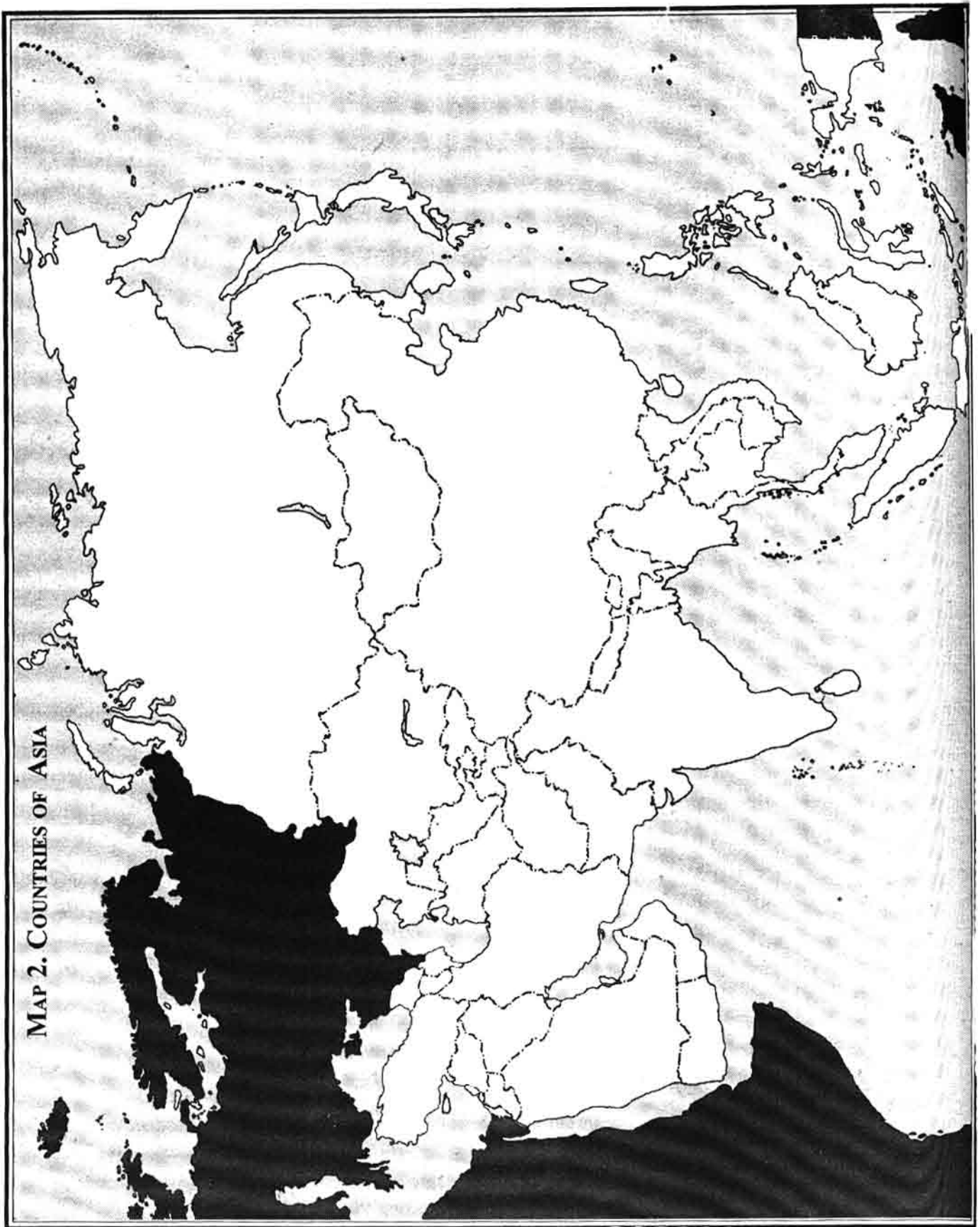
One of these groups of islands to the south-east of India is on the Equator. They are part of a country called Indonesia. We will read about this country in the next chapter.

There are many kinds of climates, vegetation, animals, crops, lifestyles, etc on this earth. There is a world of difference between Indonesia on the Equator and the North Pole. Let us go on a journey from the Equator to the North Pole, and learn new things about different countries.



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|------------|----------------------|-----------|------------|------------|---------------|
| 1- Lebanon | 2- Israel | 3- Cyprus | 4- Georgia | 5- Armenia | 6- Azerbaijan |
| 7- Kuwait | 8- Baharein , Qatar. | | | | |

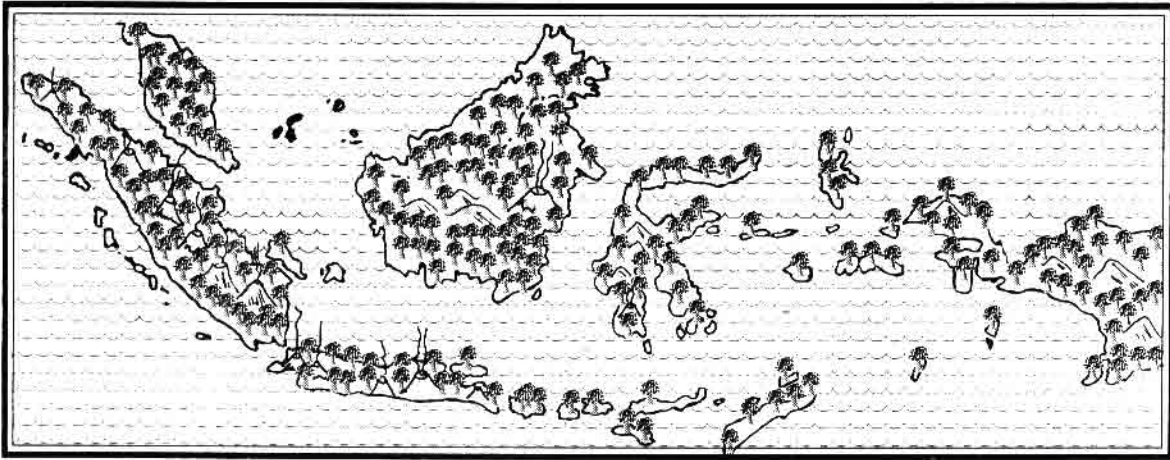


Countries of Asia

Fill in the names of all the countries and colour each one differently. Be careful not to colour two neighbouring countries with the same colour.

CHAPTER 10

INDONESIA



Thousands of islands, big and small, washed by high seas and covered with dense forests... Volcanoes towering above the forests... Molten rocks and fire gushing out of the volcanoes... Terrace fields hewn out of the hills and mountains... Plantations of rubber and pepper... Settlements dotting the land amidst the seas, plains, forests, rivers and volcanoes. This is the country of islands - Indonesia.

There are many pictures of Indonesia in this chapter. Go through them carefully. Compare the forests, fields, houses and people with those of our own country.

Where is Indonesia?

Indonesia lies to the south-east of India. There are more than 10,000 islands in Indonesia. All these islands are surrounded by the sea. One has to cross the sea by ships or big boats to reach Indonesia. People also use boats to travel between the different islands of Indonesia. What fun it must be!

- **Open the atlas and look for Indonesia.**
- **Which ocean has to be crossed to reach Indonesia from India?**

To go to Indonesia, one has to go to Chennai in Tamil Nadu, board a ship and sail for many days.

Map of Indonesia

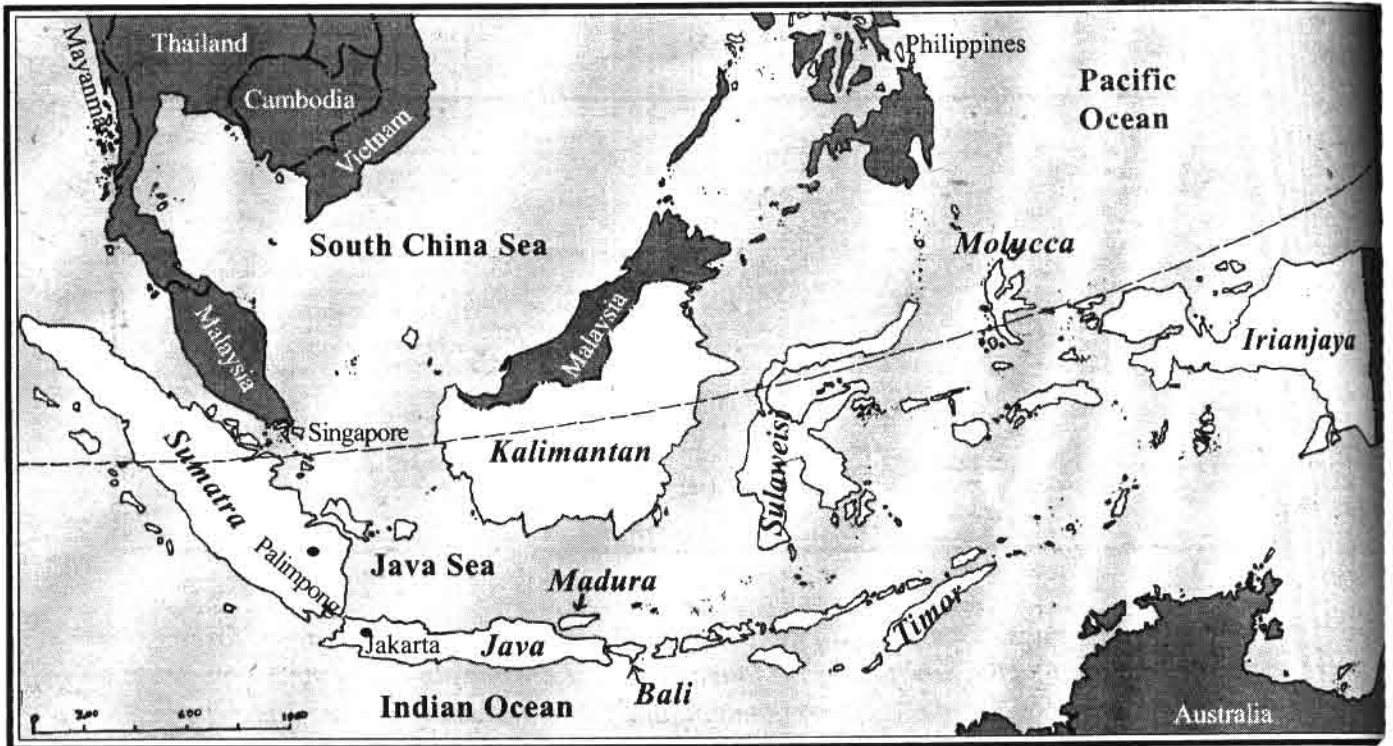
The names of different islands of Indonesia, the names of nearby seas and the names of neighbouring countries have been given in Map 1.

- **Look at Map 1 and write -**
 - the names of the main islands of Indonesia -***
 - the names of the neighbouring countries -***
 - the names of the oceans and seas surrounding Indonesia -***

There are many mountains on the islands of Indonesia. Some of them are very high. There are some volcanic mountains, too, which keep erupting from time to time (fig. 2). When volcanoes erupt, plants, trees and settlements are destroyed. But the ash from the volcanoes makes the soil fertile. People get rich harvests from their crops here.

Look at the picture showing the physical features of the island of Java (fig. 5). Other islands of Indonesia also have similar features. Some of them are more hilly than Java. The

MAP 1 . INDONESIA AND IT NEIGHEOURS



Index

Ocean / Sea	Indian Ocean
Islands of Indonesia	Bali
Equator	-----
Important cities	• Palimpong

Fig. 2. Sumeru and Bromo volcanoes of Java
You can see a wide hollow at the peak of one of the mountains from where smoke is billowing out. This hollow is the mouth of a volcano, through which molten rock spills out from the interior of the earth. This molten (hot liquid) rock is known as 'lava'. Flowing lava seen from a distance looks like a river of fire. Ash, pebbles, gas and smoke are also thrown out from the volcano. When the lava cools down, it becomes hard rock.



major portion of these islands is covered with dense forests.

EQUATORIAL REGIONS

You probably remember that the Equator passes through Indonesia.

• *Which islands of Indonesia does the Equator pass through?*

You have seen the Equator on the globe in the previous chapter. You have also seen which continents the Equator passes through. The regions which lie on both sides of the Equator are always very warm and rainy.

You will read about Iran and Japan in the coming chapters. They are both situated far to the north of the Equator. They have winter for many months, and there is snowfall, too.

Warm and Rainy Climate

We have several seasons in our country, summer, monsoon, winter, etc. Life changes so much between them - we need warm clothing in winter but prefer very light clothing in summer. The fields are barren in summer but once it rains intensive agricultural work starts. It is, however, very different in Indonesia.

In Indonesia, there are no winter, summer or rainy seasons like we have in our country. All through the year, the sun shines overhead and it is warm all through the year. There is no cold season.

Along with the heat, Indonesia gets rainfall all through the year. Almost every afternoon, it rains there. Why is this so?

You have seen that the island of Indonesia is surrounded by water. Because of the direct rays of the sun, the water from the surrounding seas evaporates and forms clouds. When these clouds reach the interior of the island, they cause heavy rain (see figs. 3 & 4). Hence it rains in Indonesia throughout the year. Such warm and humid weather lasts throughout the year. If the sea was far away and not so near, it may have rained much less.

Cultivation is carried out throughout the year since it is never dry. In contrast, fields remain fallow during the summer in our state.

• *What is the difference between the climate of your state and that of Indonesia?*

Dense Forests

There are three important factors necessary for vegetation, namely - sunlight, water and soil. In Indonesia, trees get sufficient sunlight and enough rain throughout the year, so they grow very well. Thousands of varieties of trees and plants grow here. The forests are so dense here that it is dark on the ground even during the day. The trees grow in several tiers - the canopy of one growing over the other. These trees are home to several smaller plants and creepers. Large and strong creepers called 'lianas' climb over the tall trees. All plants and trees compete for sunlight and grow taller and taller (fig. 4).

Often due to the thick forest cover rain water which falls on the ground does not dry up and swamps are formed. It is difficult to clear these forests due to the dense growth and swamps.

Due to the warm and humid climate throughout the year, the forests do not have any particular leaf-shedding time. Leaves, of course, fall, but new leaves grow, and the forest remains constantly green. These forests are, therefore, known as 'Tropical Evergreen forests'. In Madhya Pradesh, trees shed their leaves at the onset of summer. The entire forest looks bare. After the rains in June-July, the forests become green again. This does not happen in Indonesia. The trees are always green there.

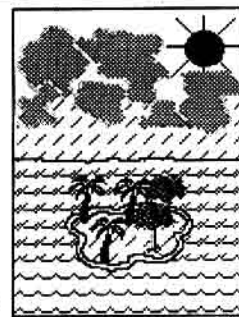
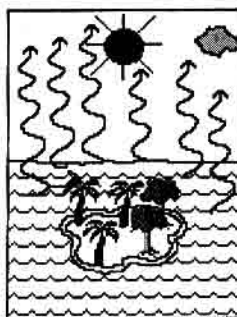


Fig. 3 & 4



Fig. 6. Equatorial Forest

- *Why does Indonesia have dense forests?*
- *Why do the trees in Indonesian forests grow very tall?*
- *Why doesn't Indonesia have a season when the trees shed their leaves as in Mdhaya Pradesh?*

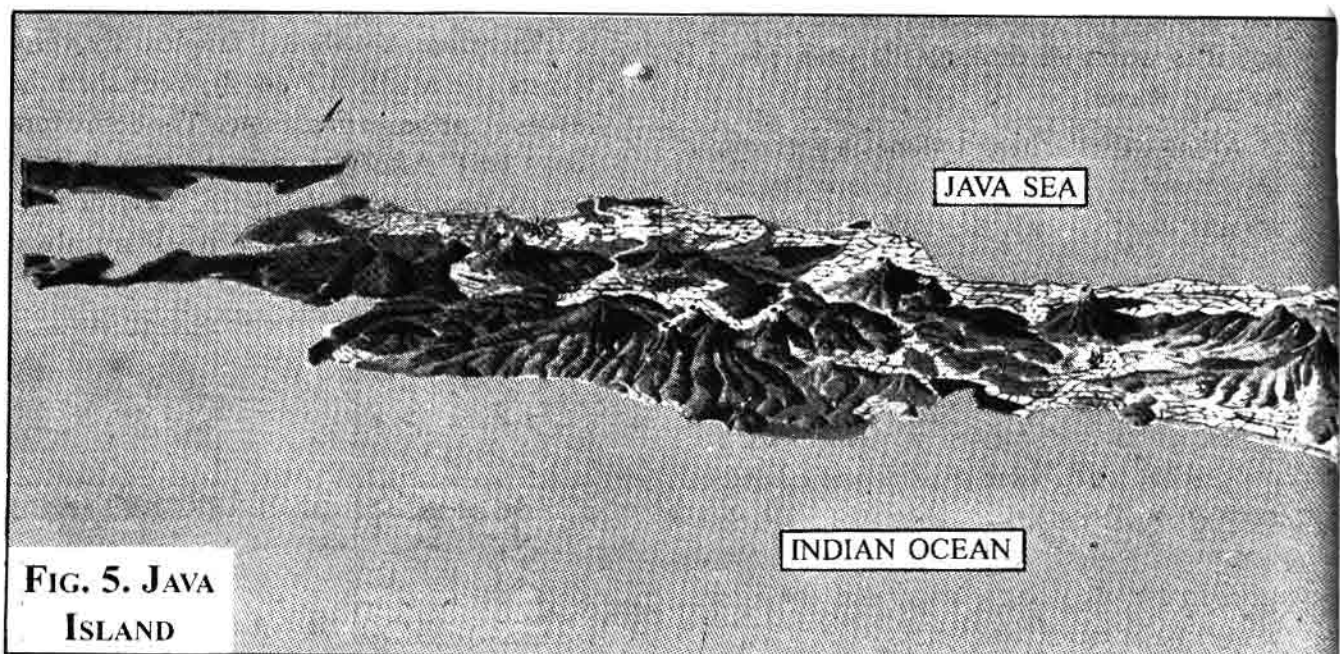
Birds of many bright colours can be seen in these forests. There are also plenty of wild animals like elephants, tigers, bears, deer, foxes and monkeys (figs. 7 & 8). These birds and animals get fruit and flowers to eat throughout the year. These forests being warm and moist, some tree or the other will always be bearing fruit.

Use of Forests

Hunting and Gathering: Even today, bands of hunter-gatherers live in the dense forests of Indonesia. They are able to meet all their necessities from the forests by hunting and gathering.

Slash and Burn Agriculture: Many people here cut down the trees and burn the forest with great effort, and cultivate crops on the ashes. When these ashes are depleted, they move on to some other part of the forest. This type of cultivation is known as 'jhum' or 'shifting cultivation'. You will read more about it in the following classes.

Valuable trees like teak, mahogany and ebony grow in plenty in these forests. Bamboo and cane, useful for building houses and ships, also grow here. These are exported to other countries. Ships loaded with timber can be seen at the ports of Indonesia. Indiscriminate felling of trees in the tropical forests has become a problem today. Due to excessive



felling, the forest is gradually diminishing. As a result of this, soil gets rapidly washed away during the rains.

- *Do you find teak, cane and bamboo in the forests around you? If so, what are they used for?*

Earlier, spices like pepper, cinnamon, clove and cardamom used to grow wild in these forests. Now they are cultivated. There are many trees and plants in the forests which are of immense use. Research is being carried out on this and attempts have begun to safeguard these forests.

AGRICULTURE IN INDONESIA

A major part of the islands of Indonesia is covered by forests even today. Agriculture is carried out only on the coastal plains. In many islands like Java, Bali, Madura and Sumatra, much land has been cleared and is being cultivated. Look for such plains in the picture of Java island. The people of Indonesia also cultivate on the mountain slopes. However, it is not easy to cultivate on the hills. If the hill slopes are cleared and ploughed, fertile soil will be rapidly washed away with the heavy rain. Hence the people here cut small terraces or steps into the slope. Along the edges, mud *bandhs* are made to stop the flow of water.

Fig. 7. Orangutan found in the jungles of Java

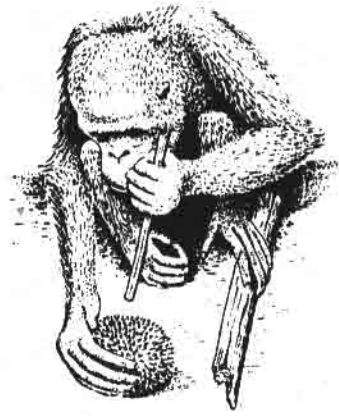


Fig. 8. Great Pied Hornbill found in Indonesian forests

Excess water is drained out through channels. Thus these fields retain both water and soil. Such fields are useful for the cultivation of paddy. The farmers of Indonesia raise three crops of rice in a year. Rice is, therefore, the principal crop of Indonesia.

In addition to rice, Indonesia produces maize, soyabean, sago, groundnuts, coconuts and bananas. Java island is famous for sugarcane cultivation. Tea, cocoa, and cinchona are also cultivated. Quinine, a medicine for malaria, is produced from cinchona.

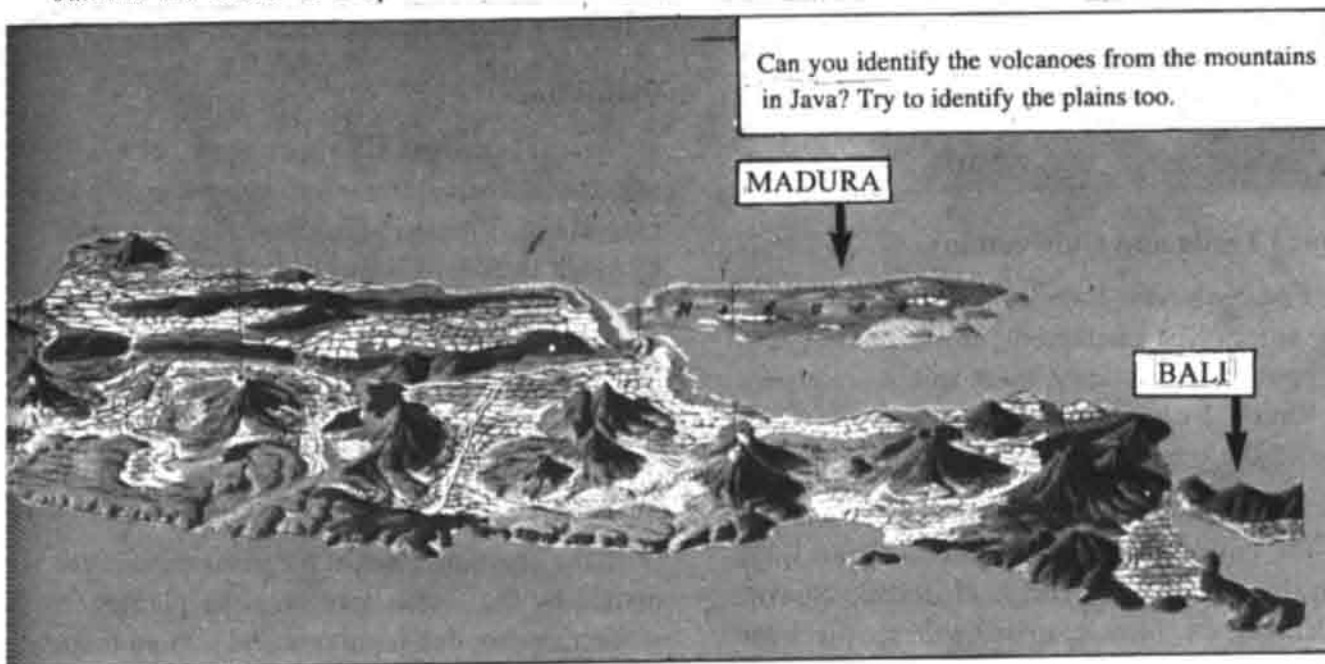




Fig. 9. Terraced Fields - What arrangements have been made to stop the flow of water? Which trees are shown? Are there similar trees in the fields around you?

- *In which season does rice grow in our country?*
- *Discuss why rice is the principal crop in Indonesia? Why is wheat not grown there?*

Spice Trade and Cultivation

For centuries, Indonesia has been famous for spices like cardamom, clove, nutmeg and pepper. In our country, these spices are grown in Kerala. Kerala, quite like Indonesia, is warm round the year, and also gets a lot of rain.

Spices grown in Indonesia are exported to other countries. European countries like, England, France, Italy, Holland, Spain, Portugal, etc. have been using these spices for many centuries. In the beginning, these spices

grew wild in the forests. People used to gather and sell them to traders in the towns. Traders from Holland and Arabia loaded their ships with these spices and made a lot of profit selling them in distant lands. These spices were not available in their own countries. Traders from India also used to come here for the spices. Many of these traders have settled down in Indonesia itself. As the demand for spices increased, people began to cultivate them.

You may know that long, long ago, the British came to India to trade and gradually established their rule over India. We had to fight for long to regain our independence. A similar thing happened in Indonesia. There, too, the traders who came to buy the spices gradually established their rule. In Indonesia it was the Dutch (from Holland) who ruled the country. Indonesia became independent a little after India in 1949.

Today Indonesia sells coffee, rubber, spices like pepper, tobacco, sugar, tea, coconut oil and copra (dried coconut) to other countries. These are grown in large plantations.

Plantations

Special crops like rubber, tobacco, sugarcane, coffee, tea and spices are grown in plantations. Plantations are big estates owned by large landlords who cultivate these crops on a very large scale for the purpose of selling them. They employ a large number of workers who live in quarters within the plantations. They tend the crops and harvest the products and pack them for sale and export. All these jobs are done on the plantation itself.

In the beginning most of the plantations were owned by the Dutch who kept the plantation workers as bonded labourers and treated them very badly. Today life has improved for the

Fig. 10. Work on a plantation. Look at the picture carefully and figure out who are the people shown here and where they must be living.



workers and most of the plantations are owned by Indonesians themselves.

The crops which grow in Indonesia need a lot of water. In India, Kerala, Bengal and Assam get plenty of rain, so some of these crops also grow in these states of India.

- Write down the names of the crops which grow in Indonesia.
- Look at Map 2 and say which island produces which crops.

Island	Crop

MINERALS AND INDUSTRIES

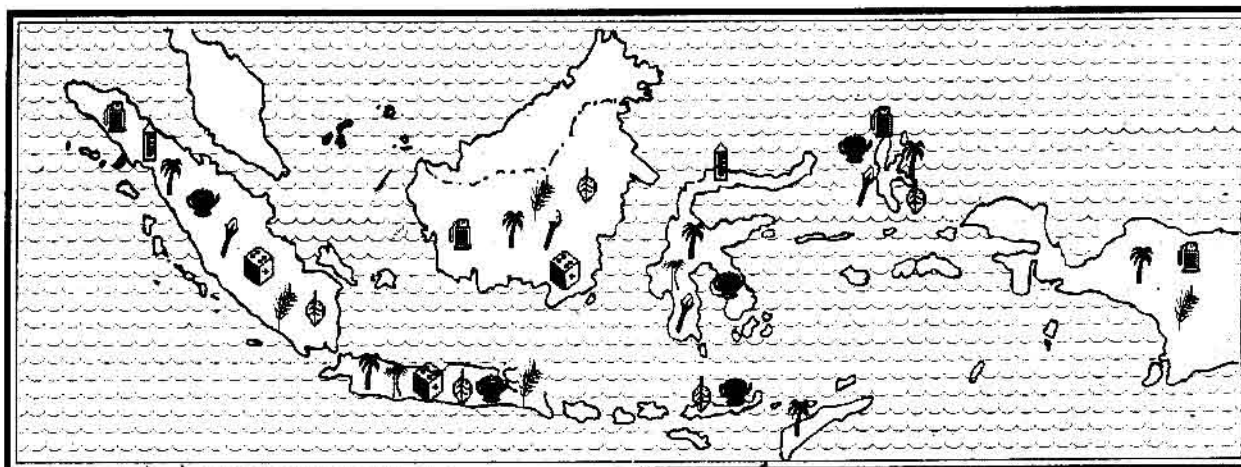
Indonesia has many mineral resources like tin, petroleum, manganese, bauxite, coal, iron, etc.

- Do you know about any of these? Look at the metal objects around you and tell what metals they are made of.

You must have seen aluminium utensils at home. The raw material from which aluminium is made is called bauxite. There are bauxite mines in Indonesia. Bauxite is mined in our Madhya Pradesh as well.

You may have noticed the white coloured coating inside brass utensils. This is a coating

MAP 2. AGRICULTURAL AND INDUSTRIAL PRODUCTS OF INDONESIA



Coffee	Coconut	Spices	Sugarcane	Rubber	Rice	Tobacco	Tin	Petroleum

of tin. You use kerosene to light cooking stoves. Scooters and motor cars run on petrol or diesel. These are all made from petroleum which is obtained from deep under the earth. Indonesia has large deposits of petroleum which are pumped out through oil wells.

- *Find out from Map 2 the islands of Indonesia on which tin and petroleum are found.*

Earlier, most of the oil wells of Indonesia were owned by the Dutch who used to export the oil to other countries. Indonesia became independent in 1949. Since then, an attempt has been made to develop new industries.

Earlier, most of the earnings of Indonesia came from the export of its petroleum. Recently Indonesia has been exporting many new products. Many of these new industries use the natural resources of Indonesia and some of them use imported raw materials. Some of the new important industries of Indonesia are - cotton textiles and garments,



Fig.11 Tapping Rubber Sap. There are many rubber plantations in Indonesia. The sap is extracted from the trunk of the rubber tree and is used to produce rubber. What do you use rubber for?

footwear, wooden furniture, computers, canned fish, rubber, processed metals, etc.

- *Do you think cotton for the textile industry would be grown in Indonesia or imported from other countries?*
- *Which of the industries of Indonesia do you think use the natural resources of Indonesia? Name the raw materials used by those industries.*
 - cotton textiles and garments*
 - footwear*
 - wooden furniture*
 - computer*
 - canned fish*
 - rubber*
 - TV*
 - processed metals*

SETTLEMENTS

Many islands of Indonesia, especially Java, Madura and Bali are densely populated. Now people from these islands are moving to other islands like Kalimantan.

Indonesia has very big cities like Jakarta, which is the capital, Bandung, Jogjakarta, Surabaya, etc. Nevertheless, most people live in villages. Look at the pictures showing the houses of the villages and cities.

- *What are the differences between these two pictures?*
- *Why do the roofs have such a steep slope?*
- *The village houses are built on wooden stilts. Why is this so? Discuss.*

People of Indonesia

There are many differences between India and Indonesia about which you have read. But both these countries have people of different religions and different languages. Most Indonesians are Muslims, but there are many



Fig.12. Rural Houses

Hindus, Buddhists and Christians, too. Although the people of each island speak a different language, their way of life is similar. The national language is called Bhasha Indonesia.

There has been contact between India and Indonesia since a long time. The influence of the Sanskrit language in the names of people and places in Indonesia is apparent. There are many ancient temples like in India. The people here, too, celebrate Ramlila.

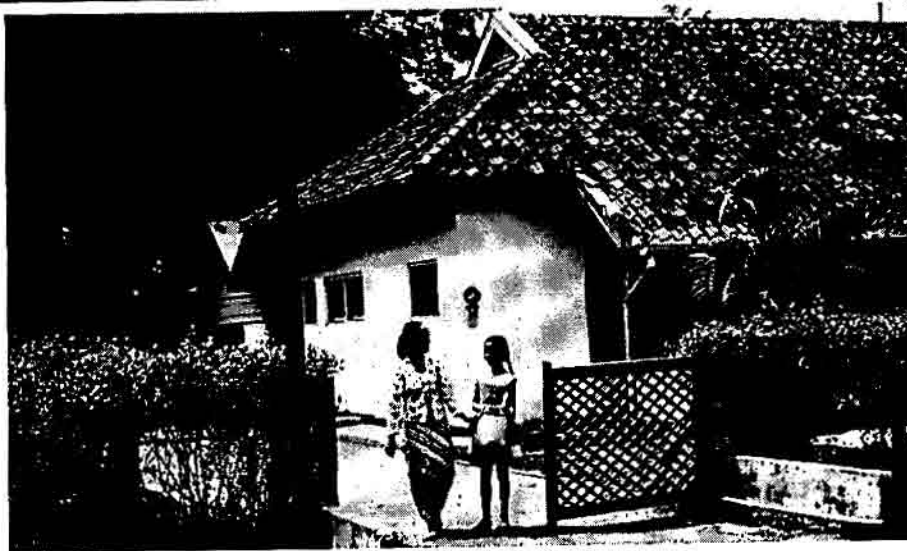


Fig. 13.City Houses

EXERCISES

1. How is Indonesia different from your state?
2. Find out what is said about 'lava' on page 124.
3. Write about the plants and trees of Indonesia in just three sentences.
4. Write about the main features of Equatorial regions in three sentences.
5. If it did not get so warm every day in Indonesia would it still rain daily there? Explain with reasons.
6. Under which sub-title would you find information about terraced fields - 'Hot and Rainy Climate', 'Dense Forest', 'Spice Trade and Cultivation' or 'Agriculture in Indonesia'?
7. What are the reasons for the cutting down of trees in Indonesia?
8. Why is it necessary to safeguard Equatorial forests?
9. What are the advantages of terrace cultivation? Select the correct answer -

a) We can prevent soil erosion.	b) There will be fewer weeds in the fields.
c) Water can be collected in the fields.	d) It becomes easy to use machines on the fields.
e) The soil becomes fertile.	
10. What are the advantages and disadvantages of volcanoes for the people of Indonesia?
11. Name 5 crops which are exported from Indonesia.
12. What did European traders buy from Indonesia?
13. The names of many places in Indonesia are given in this chapter. Which of these names are influenced by Sanskrit? Make a list of them with the help of your teacher.

CHAPTER 11

JAPAN



You must have often heard about Japan. Electronic goods like tape-recorders, TVs and video players manufactured in Japan are famous all over the world. You might even have seen some of these appliances.

Japan is a very small country. Most of it is hilly, and covered with forests. There is very little agricultural land and it has very few minerals. Yet, Japan is today one of the richest nations in the world. Japan manufactures a variety of goods and sells them all over the world. In this chapter

we will see how the people of Japan have developed their industries despite several limitations.

As you can see in this picture, the Japanese are a very courteous people. Have a look at the other pictures in this chapter and make a list of the topics that are likely to be discussed in this chapter.

Where is Japan ?

- **Locate Japan on the map of Asia. In which direction of India is Japan situated?**
- **Can we go to Japan by bus or train?**
- **Japan is surrounded by oceans and seas. What are their names? Look them up in the map of Asia.**
- **Which are the neighbouring countries of Japan?**

Like Indonesia, Japan is also made up of several islands. Many of them are tiny islets and four of them are big islands - Hokkaido, Honshu, Kyushu and Shikoku. Locate them in Map 2.

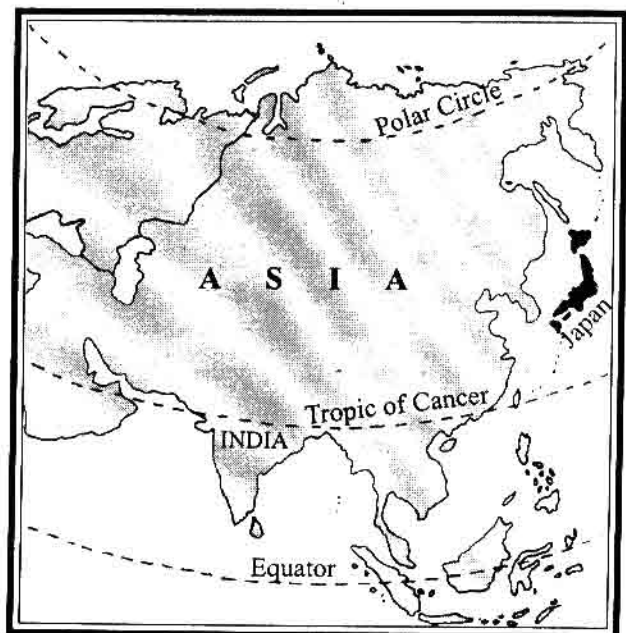
The Four Seasons

Now let us see where Japan is located on the earth's surface. You found Indonesia on the Equator. Now see how far to the north Japan lies from the Equator. Generally, tropical regions (which lie close to the Equator) are

warm all through the year. As we move away from the Equator towards the North Pole or the South Pole, it gets colder and colder.

Japan is far north of the Equator, in the temperate region. Like other countries in this

Map 1. Position of Japan in Asia



region, Japan has warm and cold seasons. Actually, temperate countries like Japan have four seasons in a year. What are these four seasons?

During **Winter**, in December-January, it gets very cold in Japan. Sometimes it rains in winter. It snows in the northern islands like Hokkaido and the whole region is covered with snow. From March onwards it is **Spring** season. Snow melts and it becomes less cold. Flowers begin to bloom everywhere. After that, **Summer** extends from May to August. In Japan it also rains in summer. Remember, we also get rain in July-August. In Japan agricultural activities begin in summer. From September to November it is **Autumn** season. The weather gets slightly cold. The leaves of the trees turn yellowish and reddish in colour and begin to fall. It is also called 'Fall' because the leaves fall on the ground. Crops get ready to be harvested in this season.

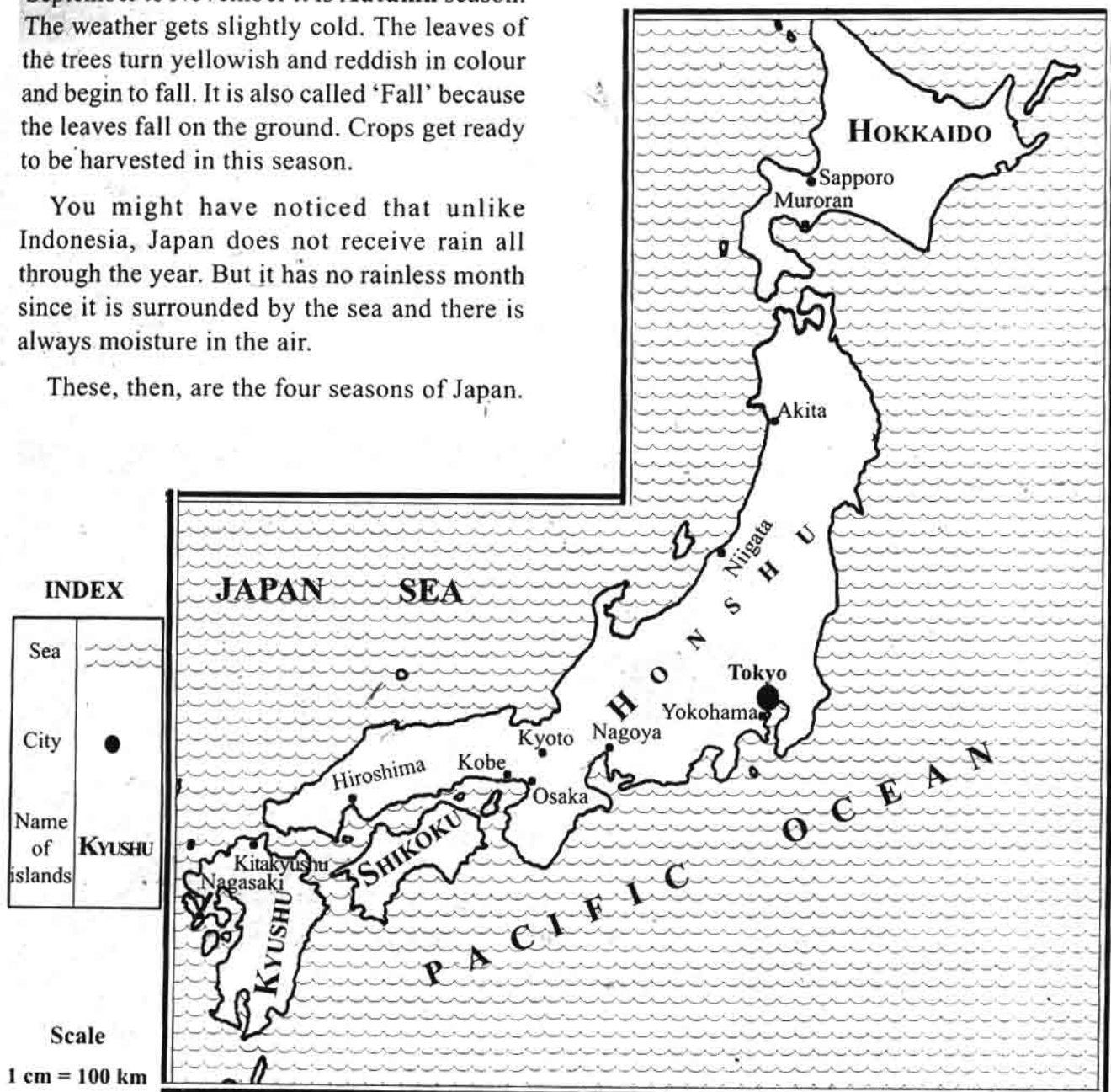
You might have noticed that unlike Indonesia, Japan does not receive rain all through the year. But it has no rainless month since it is surrounded by the sea and there is always moisture in the air.

These, then, are the four seasons of Japan.

- *Indonesia has summer _____ while Japan has summer _____. (throughout the year, for a few months)*
- *Agricultural work begins in _____ season in Japan and in _____ season crops are ready for harvest.*
- *Japan gets rain in _____ season.*

Madhya Pradesh also has a summer and winter season. But the climate is different from that of Japan. Look at a globe and locate the position of Japan and Madhya Pradesh.

MAP 2. JAPAN



- Which among these is located nearer to the Equator?
- Which place would get colder during winter and which place would get hotter during the summer?

Mountains and Volcanoes

Like Indonesia, Japan, too, is a country of mountains and volcanoes. How does Japan look? You can get an idea of the terrain of Japan by looking at fig. 2. The mountains, valleys and plains of Japan are shown in the picture.

- Look at the picture and select the correct statements -
 - Japan is a country of islands.
 - Japan is a country of hills.
 - Japan is a plateau.
 - Japan has wide plains.
 - Japan has volcanoes.
- Locate the volcanoes in the picture and mark them with a 'V'.

Look at the picture and say where people would be living in Japan. Even though Japan is mostly hilly, there are small plains between the mountains and the sea coast.

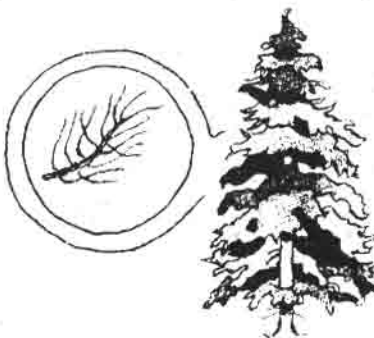
- Locate the plains and mark them with a 'P'.

Most of these plains have fields and settlements. There are big cities also. Plains are the most densely populated areas of Japan.

- Look at the map of Japan and find out which cities are located on which island. Write down the names of the important cities of each island.

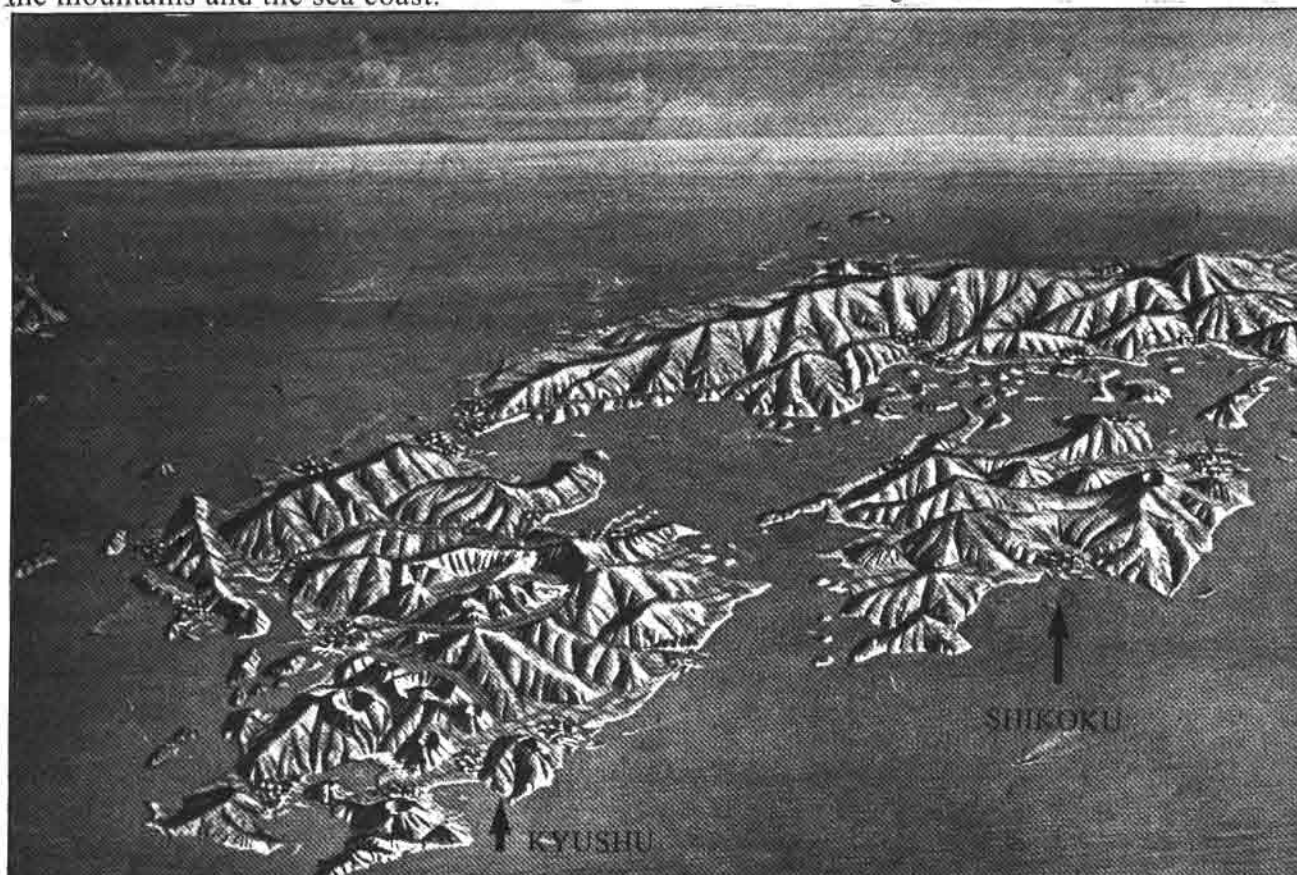
Forests

You have seen that there are many mountains in Japan. Most of them are covered with forests. Here are some pictures of the trees of Japan. We do not see such trees around us, but they can be found in the Himalayas. These trees grow in regions where it is cold throughout the year. These trees, have long, pointed, needle-like leaves and are known as coniferous trees.



Such trees can be found on

Fig. 3. Coniferous Tree and its Leaves



the high mountains of Japan and on the island of Hokkaido. These regions are cold all through the year, and also experience snowfall. But such trees are not found in other areas.

Trees with broad leaves are found in regions which are less cold. The trees mainly found in the forests of Japan are birch, maple, etc. - the

broad-leaved trees of cold regions. In these forests, during autumn, the trees shed their leaves. They remain bare all through the winter. New shoots emerge in March, and soon the trees are laden with new leaves.



Fig. 4. Broad-leaved Tree of the Temperate Region

AGRICULTURE IN JAPAN

From the mountains and forests, let us move towards the fields of Japan. Fig. 5 on the next page shows the plain next to the mountains. You can see the fields filled with water. These are paddy or rice fields.

Since the plains of Japan are very small and

densely populated, people cultivate the mountain slopes also. These slopes are very steep and stony, making cultivation difficult. So terrace cultivation is carried out on the gentler slopes of hills where there is some soil.

You can see such terraced fields on the hill in the picture. You have already read about terrace cultivation in Indonesia. In this picture, you can see some women working on the slopes.

- *Can you guess what they are doing?*
- *What has been planted on these hill slopes?*

Tea grows very well on hill slopes because tea shrubs need a lot of water which should also flow off easily. Fruit trees also grow very well on these slopes. Mulberry trees are grown in plenty. Silk worms eat mulberry leaves and grow into cocoons. The shell of the cocoon is made of silken fibres. Silk cloth is woven out of threads made from these fibres. Japan manufactures a lot of silk cloth.

We just read about cultivation on the hill slopes of Japan. Let us see what grows on the plains of Japan.

From June to September, Japan gets rainfall and strong sun in the southern parts. This

FIG. 2. A VIEW OF JAPAN



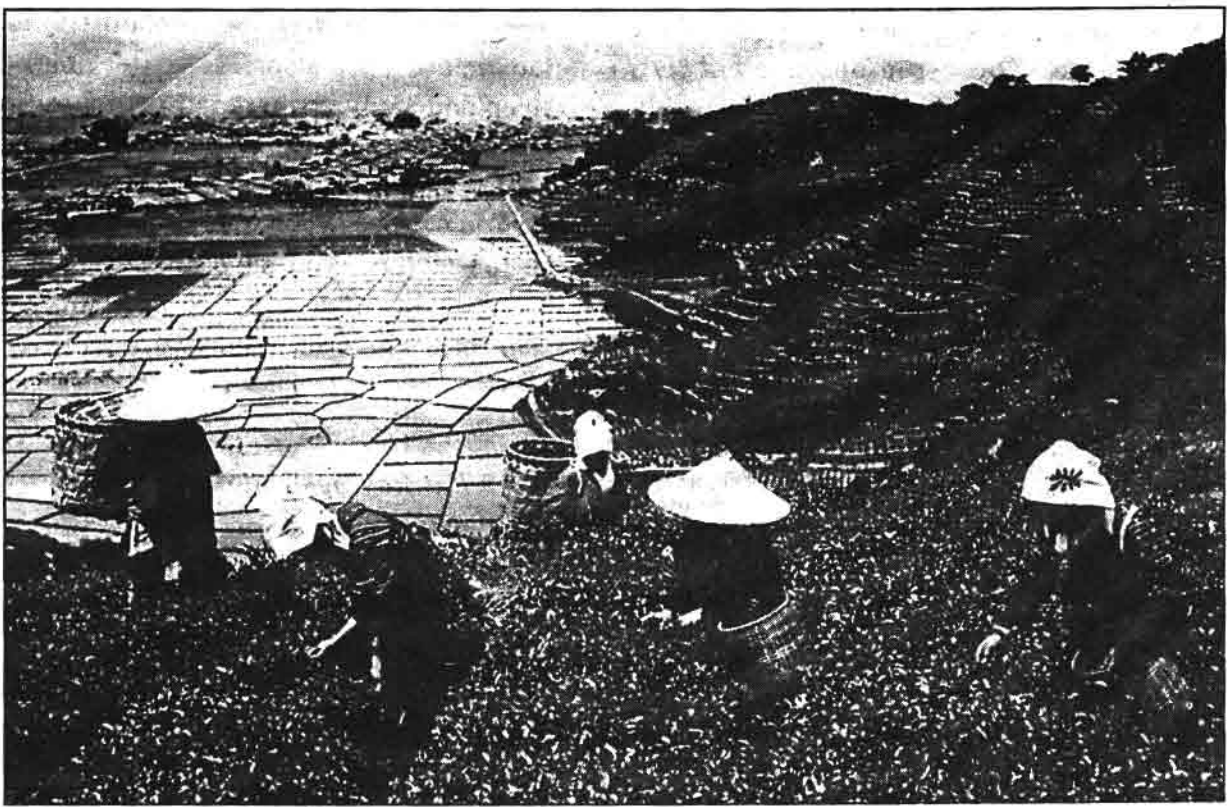


Fig. 5. Cultivation on the Slopes and Plains of Japan

season is suitable for the cultivation of paddy. Paddy grows in India, too, during the same season. In the southern part of Japan, rice grows very well, much better than in the northern parts of Japan. This is because the north is the colder region, and gets less rain. A different variety of rice is grown in some parts of the colder regions. Other crops of Japan are wheat, barley, rye, potatoes and some vegetables. They grow in regions where it is not very cold and cultivation is possible.

Small Farmers, Small Fields and Small Machines

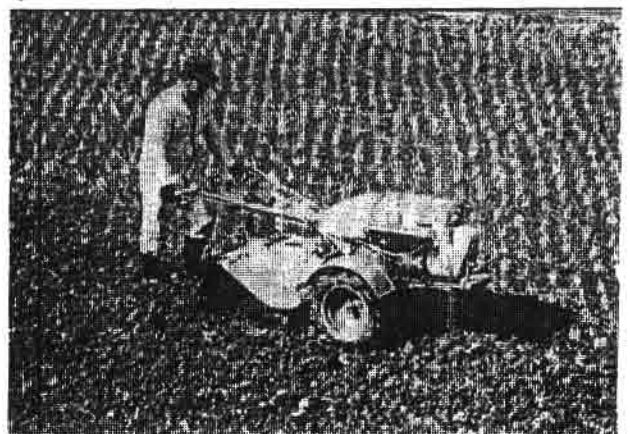
Most farmers in Japan are small farmers who do not own much land. Most of them own less than one hectare of land. So their fields are small in size. Moreover, because of terrace cultivation, the fields are very tiny.

Look at figs. 6, 7 and 8. See what kinds of machines are used to plough the field, to transplant rice seedlings and to harvest the crops. These machines are especially suited to small fields. Generally many people are needed to plough, transplant seedlings and harvesting. But in these pictures, you can see only one person carrying out the entire work



Fig. 6. Transplanting Machine

Fig. 7. Ploughing Machine



on the field with the help of small machines. Agricultural work in Japan is usually carried out by small farmers themselves without the help of hired workers.

- *Give two reasons why the farmers of Japan do not use machines like tractors and harvesters.*
- *Why do small farmers in India not use such small machines?*

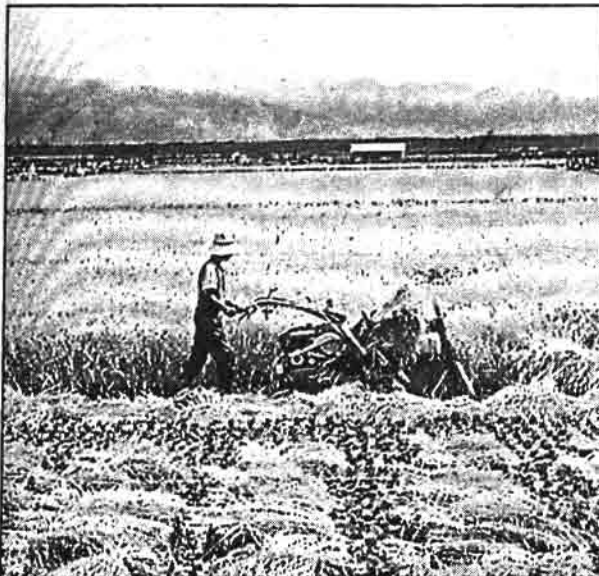
Most of the agricultural work in Japan is done by machines. Very few people are involved in agriculture. Many people work in factories because they get higher wages there. Even in a farmer's family, most people go to work in factories except for one person who stays at home to look after the fields.

Import of Food Grains

The output of agriculture in Japan is very high, but it is still insufficient to meet the needs of the whole country. The population is dense and a large part of the land cannot be utilised for cultivation. So, Japan imports grain, meat, milk, etc.

- *Despite high agricultural production, why does Japan have to import food?*
- *Write four important points about agriculture in Japan.*
- *Why are agricultural labourers not needed in Japan?*

Fig. 8. Harvesting Machine

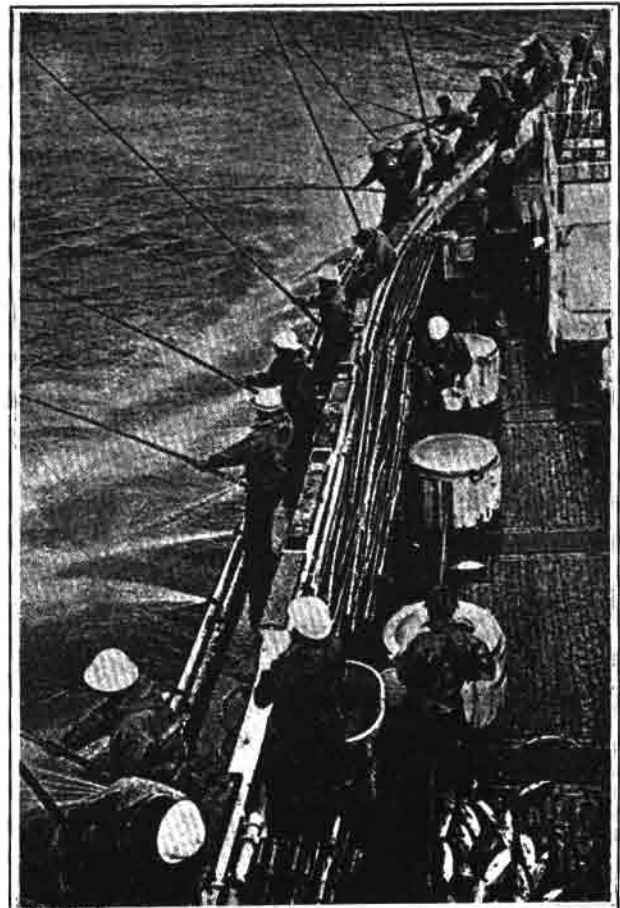


Fisheries

Japan is surrounded by seas, in which there is a lot of fish. Hence, fishing is an important occupation in Japan. They have a good water transport system, so it is very easy to go from a settlement on one shore to another. People go in big ships travelling great distances in order to fish (see fig. 9). There are many industries in Japan based on fishing. There are factories for tinning fish, extracting oil from fish, etc. Oil from some varieties of fish is used in the manufacture of medicines. Japan exports tinned fish and cod liver oil to many other countries.

Fishing is a major occupation in India, too. Most of the fish we get in the markets of Madhya Pradesh are caught from rivers and tanks. However, in the coastal areas of India there are a large number of fishing communities who catch fish from the seas. You will read about them in later classes.

Fig. 9. These ships are not only used for fishing, but for drying, canning and extracting oil from fish



INDUSTRIES OF JAPAN

We have seen the plains, mountains and sea coasts of Japan, and have talked about the forests and fields there. Let us now read a bit about the factories of Japan. Japan is famous for its industries. There are various industries in Japan. Map 3 shows the principal industrial centres of Japan and the main products manufactured in these centres.

Tokyo is the capital city of Japan. Adjoining it is Yokohama city. See in the map how many industries are located here.

- Look at Map 2 and say which industries are located near these cities -

Tokyo _____ Yokohama _____

Kobe _____ Osaka _____

Kitakyushu _____

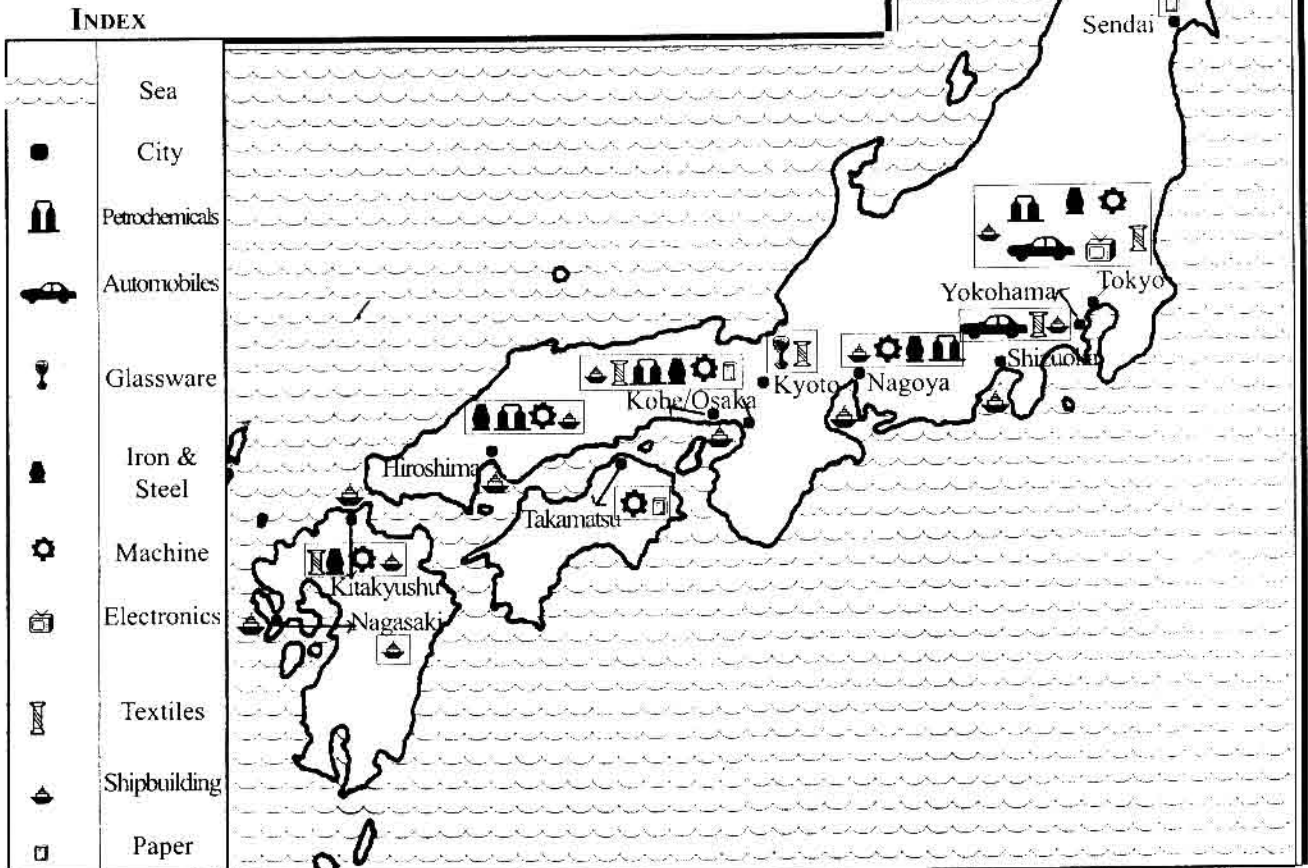
Problem of Raw Materials

Many industries flourish in Japan, but they do not have sufficient raw materials for them in Japan itself. Necessary minerals like coal, iron and copper are obtained from Japan's own mines. But Japan has to depend on other

MAP 3. INDUSTRIES OF JAPAN

Scale: 1 cm = 125 km.

(Note: Hokkaido island is not shown in this map.)



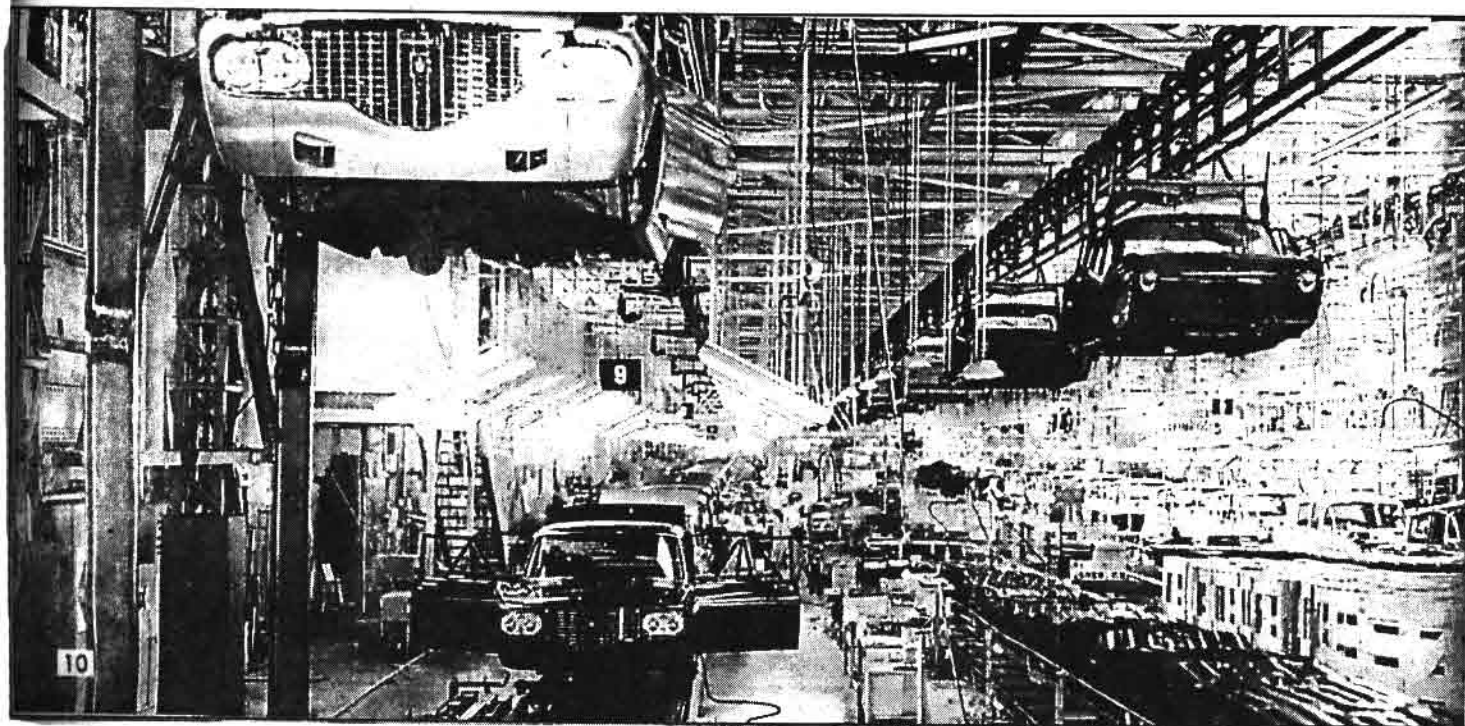


Fig. 10. Inside an Automobile Factory

countries for many other raw materials. In turn, Japan exports manufactured goods to other countries.

- Fill in the table given below -

Imported Items	Purpose of Import (For fuel / for food / for industries)
1. Mineral Oil	
2. Petrol	
3. Copper	
4. Tin	
5. Iron Ore	
6. Coal	
7. Cloth	
8. Meat	
9. Fodder	
10. Cotton	
11. Soyabean	
12. Wheat	
13. Timber	

- What food items does Japan purchase from other countries? Why do they need

to import these items?

- Why does Japan need minerals, petrol, copper and coal from other countries? What are these minerals used for?

The Japanese use the imported raw materials to make vehicles, steel, ships, tape-recorders, computers, clothes, plastic goods, etc. They export these items to other countries.

A Country Dependent on Trade

Japan has many industries, but the necessary raw materials are inadequate. Most of the raw materials (like iron ore, copper, coal, mineral oil, cotton, etc) are imported from other countries. The industrialists of Japan purchase raw materials from all over the world, manufacture goods in their factories and sell them in different countries of the world. In this way, they are able to make use of the resources of other countries.

You may recall that their agricultural production is also insufficient for their requirements and the Japanese import foodgrains. They exchange their manufactured products for foodgrains. If Japan were to end its trade relations with other countries, there would not even be enough food for its people!



Fig. 11. A Bay and Port in Shikoku

Transport - Railways and Waterways

Transport is an important factor in exporting and importing goods. The railways and roadways of Japan are highly developed. Trains in Japan travel at a very high speed.

The coast of Japan is very irregular. If you look at the map of Japan you will see many gulfs and bays. 'Gulf' is the name given to a part of the sea surrounded by land on three sides. India also has some gulfs like the Gulf of Cambay.

- *Locate 5 gulfs or bays on the Japanese coast in Map 1, and mark them with a 'G'.*

There are excellent ports situated in the gulfs in Japan. For good ports, there should be deep water near the shore where ships can be anchored. Since a gulf is enclosed by land on three sides, there is protection from strong winds, storms and water currents. If you look carefully at the map of Japanese industries, you will notice that most of them are located near gulfs.

A large number of people are engaged in industrial production. People in villages also work in the factories located in cities. Most of them travel long distances every day to reach their factories. Thousands of people in the towns also travel to the factories every day and return in the evening. Motor vehicles and

railways are very important for this purpose.

Industrial Pollution

You have seen that thousands of factories are located in small regions in Japan. Due to these industries, water and air are getting more and more polluted every day. The smoke from the factories contains poisonous gases. The waste water from factories pollutes the nearby rivers, canals and even the sea. Since the factories are close together and congested, the problems are getting worse.

This sort of pollution causes many diseases to human beings and animals. Several years ago, the people of Minamata city suffered from a strange disease. They began to be struck by a kind of paralysis. In 1969, about 45 people died due to this disease. On investigation, it was found that the root of this disease was the waste water from one of the factories. This waste water contained poisonous chemicals, and the fish which came in contact with that water also became poisonous. People who ate the fish got paralysed due to the poison. Today, this disease is known as the Minamata disease.

Similarly, the poisonous wastes from another factory got mixed with river water and ruined the water. Since this river was used for irrigation, the crops also became poisonous. People who ate that rice developed a pain in their bones and slowly began to die.

Nowadays, diseases caused by pollution are on the increase in Japan. Efforts are also being made to control such pollution.

PEOPLE OF JAPAN

Japanese is the language of Japan. They follow Buddhism and Shintoism as their religion. The traditional dress of the Japanese is the *kimono*, though most people wear pants and shirts or skirts.

Japan has several big cities with many factories. Due to scarcity of land most cities



Fig 12. An industrial area in Japan

are densely populated. Most of the houses are small in size. They do not keep much furniture like chairs and tables.

The Japanese give much importance to the education of children. You can see here the picture of a well equipped school (Fig. 13). The children are learning science by doing experiments in groups of four.

EXERCISES

1. Which are the four seasons of Japan?
Write two sentences about each season.
2. What are the similarities and differences between the seasons of Japan and India.
3. The climate of Japan is very different from the climate of Indonesia. But it has some similarities with the climate of India. What is the reason for this?
4. You have read about agriculture in the mountains in many chapters - in Pahavadi, in Indonesia and in Japan.
What sort of cultivation is possible in the mountains? What are the problems encountered in such cultivation? What are the crops grown there? Write 10-15 sentences on these points.
5. Mention four main points about the industries of Japan.
6. How many sub-titles are given in this chapter? Count them.
7. What is the crop of the northern part of Japan? Under which sub-title will you find the answer?
8. What is a gulf? What is the importance of a gulf? Answer in only four sentences.
9. Where are trees with needle-like leaves found?



Fig. 13. A science class room in Japan

EARTHQUAKES

Earthquakes are frequent in Japan. When the rocks in the interior of the earth move, they cause tremors on the surface of the earth. This is known as an earthquake. The walls of buildings also shake. Trees are uprooted, buildings, roads, railway lines, electric poles - are damaged or destroyed.

Earlier, the Japanese used to make wooden houses. They can withstand earthquakes better than concrete buildings which develop cracks very easily. Even if wooden houses collapse during earthquakes, it is not very dangerous and there is not much damage. Wooden houses can be constructed again with the same wood. Recently the Japanese have started to make new kinds of concrete buildings which cannot be easily destroyed during earthquakes.

CHAPTER 12

THE POLAR REGIONS OF ASIA

In this chapter we are going to read about a region which is entirely different from any place we have so far seen. This region has continuous nights for many months and continuous days for many months. There is no daily sunrise and sunset like we have in our country. Can you imagine such a place? This region is very cold. So cold that only ice and snow can be seen - ice on the land, ice on the streams, ice on the rivers and even the whole sea is frozen.

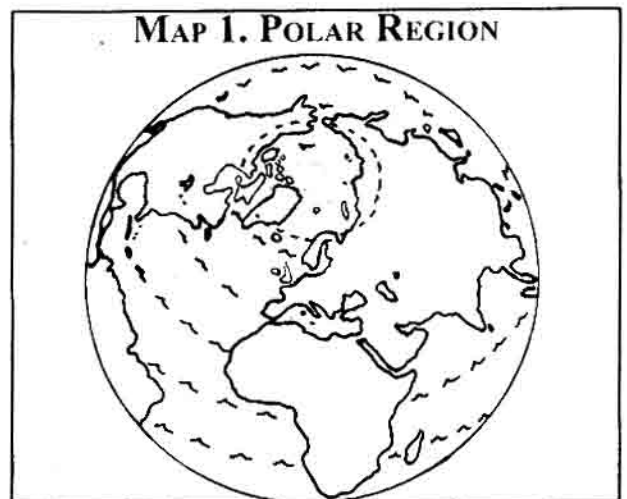
Look carefully at the pictures given in this chapter. What can you learn about the polar region?



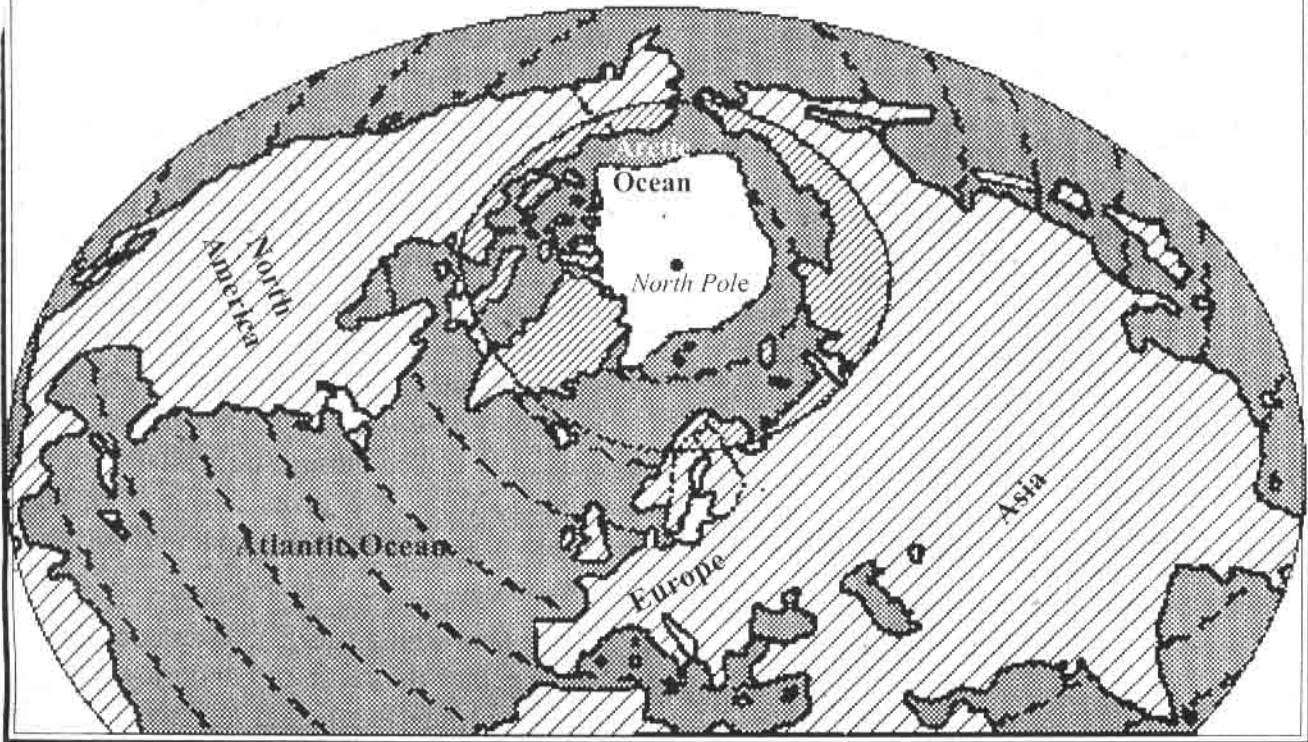
WHERE IS THE POLAR REGION?

You have seen the North Pole and South Pole on the globe. The region which lies near the poles is called the 'Polar Region'. You are going to read about the northern Polar Region in this chapter.

Look at Map 1. It shows the North Pole and its surrounding regions. The entire Polar Region has been shaded lightly. Notice how the boundary of this region has been drawn. This is known as the 'Arctic Circle'.



MAP 2. THE POLAR REGION - A CLOSER VIEW



- *Parts of which continents fall within this region?*

The northern parts of the continents within the Polar region are known as the Tundra. It is not a separate country, but is made up of parts of many different countries. Here, there is no vegetation like we have in our country. There is a unique type of vegetation known as the 'Tundra Vegetation'. The name Tundra region is derived from the name of this vegetation. This region is shaded black in Map 3.

- *Which country is this a part of?*

Locate India, Indonesia and Japan in the map and see that the Tundra lies in the northern-most region, away from the Equator, close to the pole.

- *Try to recall what happens as we move away from the Equator.*

SEASONS IN THE TUNDRA

The most important fact about the Tundra region is the extreme cold. It is difficult to even imagine how cold it is in the Tundra. It is so

cold that water is frozen for many months. For 3 to 4 months it is slightly warmer, and the ice melts.

Winter

Since the Tundra region gets very little sunlight, it is very cold. The sun does not rise for two or three months of the year. In our

MAP 3. ASIAN TUNDRA

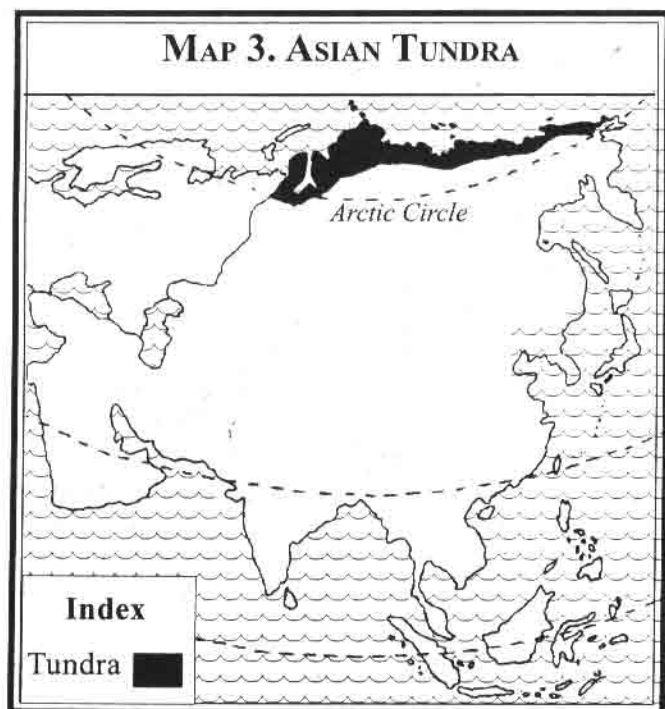




Fig. 2. Ship surrounded by ice. The ice has begun to melt and break off

country, the sun rises and sets everyday. But this does not happen in the Tundra. It is almost dark throughout November, December and January, since the sun does not rise at all. This is the winter of the Tundra, and it is bitterly cold for many months. You know that when it is extremely cold, water freezes to become ice. The Tundra region becomes severely cold - colder than the temperature below which water turns to ice. In this extreme cold, the water of the rivers, lakes and seas freezes. Strong, cold winds blow and there is snowfall.

Due to the severe cold, dark and icy conditions, all the plants die. Even birds and animals leave this region and migrate elsewhere. The whole region becomes dark, deserted and desolate.

Summer

The sun begins to shine in the Tundra around February-March. In the beginning, the sun shines for a maximum of an hour and a half and then sets. Gradually, the day lengthens - 2 hours, 6 hours, 8 hours, 16 hours, 20 hours and finally 24 hours! Yes! Then for almost three months from May to July, the sun never sets - it shines for 24 hours. But the sun does not rise overhead, but just goes around the

horizon. It does not climb up or go down but hovers a little above the horizon. (The horizon is the place where the earth appears to meet the sky). Since the sun does not go high up in the sky, it is never very warm.

Continuous days and continuous nights are a unique feature of the polar regions. In fact, there is a six-month long day and a six-month long night at the poles!

Even in the three months of summer, it is cold. But it is comparatively less cold than the winter months. Due to the relatively warm weather, some of the ice melts. The rivers which are frozen during the winter melt and begin to flow. The lakes fill up, and huge chunks of ice break off and float into the ocean as icebergs.

The land which was frozen and desolate in winter comes alive with colour during summer. When summer approaches, many multi-coloured plants, lichen, grass, shrubs and berries sprout all around. They bear flowers and fruits of different colours. Many birds and animals come to feed on them.

Vegetation

- *Two pictures are given on the next page. One picture shows winter and the other shows summer. Which picture shows summer, and which one shows winter? Look carefully at the pictures. Can you see any tree? Is there dense vegetation in this region?*

Due to the cold, the soil under the upper

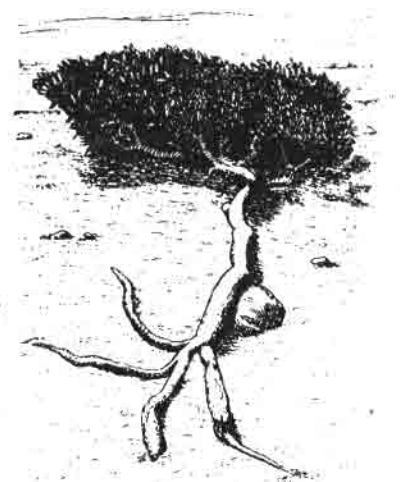


Fig. 3. The state of trees in the Tundra! These 'trees' grow out of cracks in the rocks and creep along the earth.



Fig. 4 & 5. Which among these is of summer and which of winter?

surface of the Tundra region is frozen into a rock-like state all through the year. This is called 'permafrost'. Wherever there is a little soil, some small plants can grow. The underground soil being hard, it is difficult for trees to grow. Even if they do manage to grow, the trees get damaged and uprooted with the strong winds and storms. So most of the Tundra region is treeless.

• *Mention five points about the summer in Tundra.*

• *Fill in the blanks -*

The sun does not appear in the Tundra region during the months of _____ and _____.

At this time, the water _____ and the plants _____.

• *How would the people of the Tundra get light in winter?*

Dependence on Animals

You may think that human beings can't live in such a place. But surprisingly, people live here too. The people of this region of Asia are the Yakuts, Chukchis and the Semiyads. Of course, their population is very small, and most of the Tundra region is uninhabited.

How would the people here be living? What would they be eating and drinking? It is impossible to raise any crop in such a cold and ice-bound place. Very few plants and trees grow here, and those that do grow, survive for only two or three months.

In India, we are more dependent on trees and plants than on animals. We obtain our main food requirements from plants. We collect

firewood for fuel. We use wood to build houses. It is totally different in the Tundra, where people are very dependent on animals.

THE LIFE OF THE CHUKCHIS

Let us get to know more about the lives of the Chukchis who live in the Tundra region. On the north-east tip of Russia, at the edge of the Arctic Ocean, there are some small settlements. These are the settlements of the Chukchi people. Their main occupation is hunting. There is no cultivation around here.

The Summer Days

The Chukchis are very fond of the summer days. The whole settlement gets up very early in the morning. All around, there is light, and the white sheet of ice is replaced with colourful plants. One can hear the chirping of different kinds of birds. It is easy to hunt the animals which come to graze. The ice melts in the sea, and huge sea animals begin to move about in large groups. It is a happy time for hunters!

The roar of giant sea animals like the walrus can be heard across the melting seas. Herds of walruses move around together in the sea. Other sea creatures like seals, whales and fish are also found in plenty.

Fig. 6. Chukchi Settlement



The Chukchis hunt these animals and they are the basis of their lives. The hunters intently await the roar of walrus. Whoever happens to hear the sound first, alerts the others. They run towards their boats with their guns and harpoons. In the old days, people used to hunt with bows and arrows. Boats used to be made by wrapping walrus skin around a frame made of bones. The sail was made of animal skin. These boats are known as 'Bidarka'. Nowadays, the Chukchis, have motor boats which are sturdy and swift. In these, they can stalk their prey with greater speed and carry back more animals. In a bidarka, however, only one or two walrus could be carried.

After killing the walrus or seal with a gun, the hunter throws a harpoon at it. The harpoon is made of long animal bones. On one end it has a hook of bone, and the other end is tied to a long rope. The rope is also made of animal skin. The hook of the harpoon gets embedded in the body, which is then pulled into the boat. The harpoon is an essential weapon for hunting in the sea. Sometimes, huge whales and dangerous fish are also encountered while hunting in the sea.

Fig. 8. Skinning a walrus



Fig. 7. Walrus: It has tusks like an elephant, and whiskers. A male walrus can weigh more than 1000 kg. Despite its bulk, this animal is a swift swimmer. It filters mud through its whiskers while eating fish. The walrus lives in big herds.

The Chukchis remove the skin of the dead animal at the sea shore (fig. 8). They use the skin to make clothes, bedding, tents, boats and sledges. The fat from seal meat is burnt in lamps to provide light. They do the maximum hunting during the summer and store frozen meat for winter. Frozen meat does not spoil for long periods.

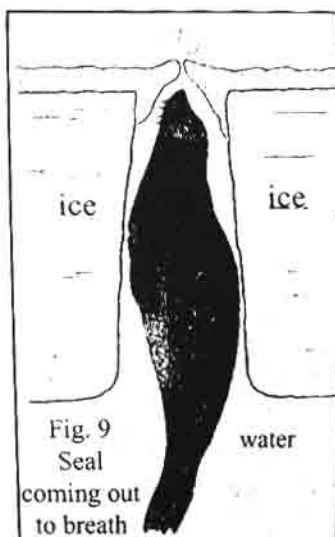
The Winter Days

As the sun disappears, the cold increases. The sea water begins to freeze. The water in the rivers and lakes turns to ice. Cold, snowy winds begin to blow. Occasionally, there are snow storms and the land, rocks, tents, boats and vehicles are all covered with snow (fig. 10). The plants which had grown in summer, get buried under the snow.

People burn seal fat inside their tents and sit around it. It is dangerous even to venture outside. Out in the open, the heavy snow storms and strong winds can sweep one away, and one can get buried under the snow. Many people die in these heavy snow storms. During a snow storm, hardly anything can be seen because of the snow fall. People lose their way, and may even fall off a cliff and die (fig. 11).

It is almost impossible to go out to hunt on such days. There are also no walrus in the icy sea. Of course, if there is no storm, and there is enough moonlight, people go out to hunt animals like the seal, fox and bear.

The seal lives in the sea. But the upper layer of the sea is covered by a crust of ice. To take



a breath, the seal comes to the surface of the sea through the cracks in the ice. At that moment, people waiting with traps or nooses, are able to hunt them. Seal skin is very warm and soft. Seal's fat also has many uses.

On many days, however, they may get nothing. During such times, they eat frozen walrus meat, chopping off pieces with an axe.

The Chukchis lay traps by placing pieces of meat for foxes and bears. From time to time, they check whether or not any fox has been caught. The soft and furry skins of the fox and bear of the Arctic region are very valuable for trade. The Chukchi people collect these skins in winter and sell them in summer.

In summer, the weather is clear, and even ships can travel to the Tundra region. Landing by aeroplanes is also easy. So, in the summer season, there is brisk tradeing. In exchange for the skins, the Chukchis buy goods like grain, guns, tea, tobacco, knives, axes, etc.

- *Which animals are hunted in the Tundra region?*
- *In which season is the walrus hunted?*
- *What do the Chukchi people obtain from the walrus?*
- *The Chukchi people live in _____ (houses/caves/tents)*
- *To buy essential goods, they sell _____ (seals/furry skins/walrus meat)*

Animal Husbandry

Some people of the Tundra are animal herders. The reindeer is the domestic animal of the Tundra. It is an animal like the deer, with antlers. A reindeer keeper may have upto 100-150 reindeers. The reindeer is an



Fig. 10. A snow covered settlement

important resource for these people. They use the reindeer to pull sledges and its meat, too, is eaten. They make tents or boats with its skin and tools with its bones.

By now it must be clear to you that the life

Fig. 11. Snowstorm





Fig. 12. Camp of reindeer herders

of the people of the Tundra is dependent mainly on animals. They make clothes out of the furry skin of the reindeer or other animals. You can get an idea about how their clothes would be from figs. 8 & 10. Their dresses, footwear, socks and caps are all made of animal skins.

Reindeer herders do not stay at one place. They keep moving in search of fodder. They stay in the Tundra during summer when small plants grow there. The reindeer graze on these plants. In addition, reindeer keepers also hunt other animals. When the winter comes, the vegetation disappears, everything gets frozen

and darkness descends. Even animals leave this place during this time. The reindeer herders pack up their tents, and along with their animals, move towards the forests further south.

The coniferous forests south of the Tundra are also cold. But the cold is comparatively less. There is also enough light. People get firewood, fodder and animals for hunting. During the summer they return to the Tundra again. Most of the year, they keep moving from one place to another. It is for this reason that they live in tents.

We have seen that these people frequently travel from one place to another. So, how do they carry their luggage? They use a cart which can be pulled through the ice. It is made of animal bones and skins and is called a sledge. It does not have wheels, but is pulled by reindeer or dogs and moves by sliding over ice. People of this region mainly use sledges to move around.

MINES AND INDUSTRIES

Petroleum and gold have been mined in the Tundra over the past thirty years. As a consequence, many outsiders have come and settled down here. Now there are big cities also. The lives of the hunters and herders have changed drastically. They have now begun to live in permanent houses, and travel in motorised sledges. But even today, their lives are based on hunting and animal husbandry.

EXERCISES

1. How does the cycle of day and night take place in the Tundra?
2. Compare Indonesia with the Tundra and point out the difference in the daily path of the sun in the sky in these two places.
3. What is the vegetation of the Tundra? Why is it known as a place without trees?
4. Why don't the people of the Tundra practise agriculture?
5. Where do the animal herders of the Tundra go during the winter, and why? Why do they return in summer?
6. Why are sledges made without wheels?
7. You have now read about three places - Indonesia, Japan and the Tundra. Among these, which depends mainly on factories, which one depends on plants and which one depends on animals?
8. In the history lessons, you have read about people similar to those of the Tundra region.
 - a) What similarities and differences do you see between the hunter-gatherers and the people of the Tundra?
 - b) What similarities and differences do you see between the pastoral Aryans and the herders of the Tundra region?

CHAPTER 13

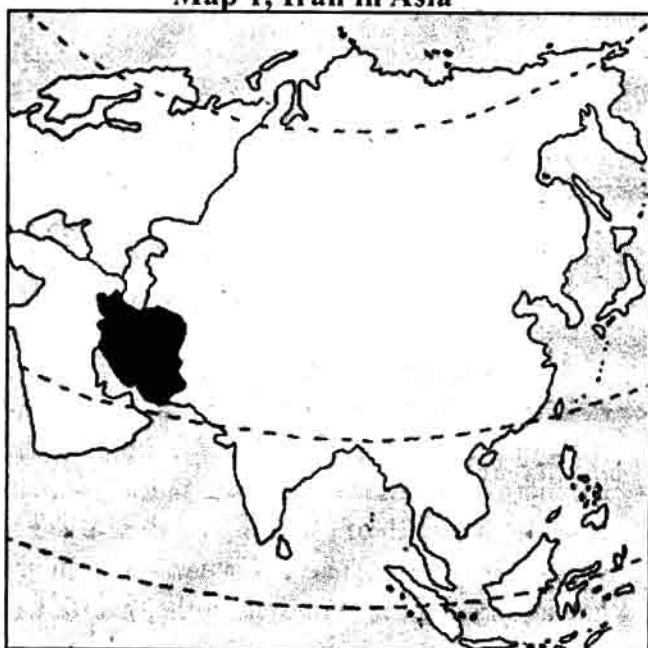
IRAN

Iran lies to the west of India. Since ancient times, there has been contact between the people of India and Iran. As a result, there are some similarities between these two cultures. For example, some pastoral people who spoke a language similar to Sanskrit settled in Iran. They, too, called themselves Arya. The name Iran is derived from Arya. That was around the time of the pastoral Aryans. Much later, people from Iran came to India and even established kingdoms here. Thus you can see that India and Iran have had a long history of interaction.

Where is Iran?

- *Locate Iran on the map of Asia. If we want to go to Iran by a land route, which are the countries we would have to cross?*
- *If we want to go to Iran from Bombay by sea, which gulfs and seas would we have to cross?*
- *Name the neighbouring countries of Iran.*
- *To the north of Iran there is the Caspian Sea. Locate it on the map of Asia.*
- *How far from the Equator does Iran lie? Find out from Map 1.*

Map 1, Iran in Asia



- *Do you think that Iran would have a warm season throughout the year like Indonesia?*

Map of Iran

If you look carefully at Map 2, you will see that Iran is shaped like a bowl. The edge of a bowl is high and the centre is low. Similarly, on the edges of Iran there are high mountains and the central part is a plateau. Look at the map and say how this plateau is different from the Bhopal-Vidisha plateau.

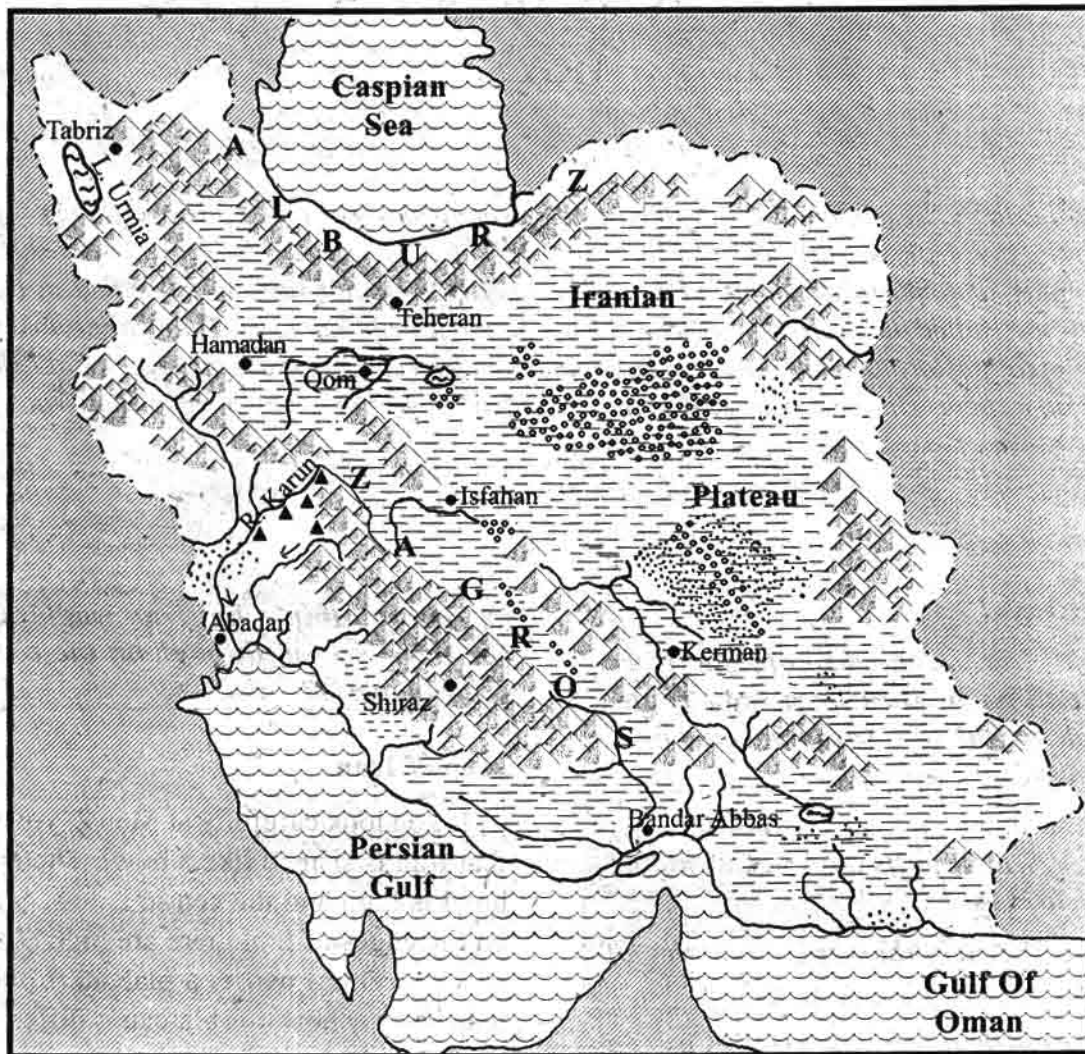
- *Which mountain ranges are located on the borders of Iran?*
- *Let us now move towards the interior of Iran. Study the map and describe this region.*
- *Can you identify the desert in the map? How many deserts are there?*
- *Which are the coastal areas of Iran? Run your finger along the river plain.*

Come, let us now read about the plateaus, mountains and coastal areas of Iran to understand the life of its people.

Plateaus - The Drylands of Iran

The major part of Iran is a plateau. The plateau of Iran is very dry and arid. There is very little rainfall here. You must have seen that there were also desert areas on the plateau. Because of the scanty rainfall, there is very

MAP 2. IRAN



INDEX

Boundaries of Iran	----
Sea	~~~~~
Other countries	▨
Mountains	▲
Plateau	▨
Salt Desert	•••••
Sand Desert	•••••
River	~
Lake	◡
City	•
Oil Wells	▲

little water in the rivers. The small rivers flowing down the mountainsides become dry once they reach the plateau.

You know that even in our region, during severe summers many rivers and streams dry up. If there is no rain, the situation becomes worse.

The plateau of Iran experiences this dry condition almost all through the year. The regions near the Zagros mountains on the southern and eastern side, and on the Caspian coast in the south of these mountains, also get very little rainfall. The other parts of Iran are not as dry. In the winter months, rainfall is

heavy in the western and northern regions. So, rivers and streams begin to flow. The snow from the mountains melts and flows down the rivers. There is also fertile land near these river banks, and people grow crops here.

The winter in Iran is very cold, like in Punjab and Kashmir. But during summer, it is extremely hot. The summer in Iran is more severe than the summer in India. You know how hot it is here in May and June, until it rains. On the Iranian plateau, since it hardly ever rains, imagine how hot it must be!

What sort of trees would grow in such a dry region? There cannot be a forest with such little rainfall, only some grasses and shrubs. See fig. 1.



Fig. 1. Dry regions of Iran

Bakhtiyars, Baluchis, Kashkais etc. They move about in these grass and shrubby lands in order to graze their sheep and goats.

• ***Can you say why they rear sheep and goats instead of cows and buffaloes?***

These pastoralists live on the slopes of the hills. In the winter it is very cold on the mountain, so they graze their sheep and camels animals either on the plateau, or in the coastal region. During this time, the mountains are covered with snow. When summer approaches and fodder becomes scarce in the lower regions, they go up the mountains along with their herds. On the mountains, during summer, snow melts and there is some greenery, and soft and juicy new grasses grow (Fig. 2). These being hot summer months, nothing grows on the plateau.

• ***Apart from grass, what else do animals need?***

These bands of people travel through regions where water is available for them and their animals. They rear donkeys and horses to carry their loads while travelling. In very dry regions, camels are reared for this purpose.

• ***Why are camels more useful in very dry regions?***

- ***Can you see any vegetation on the mountains?***
- ***What seems to be growing at the foot of the mountains?***
- ***What can you tell about the people of Iran from the picture? Write in 5-6 sentences.***
- ***What sort of houses do they live in?***
- ***Which animals do they use for riding?***
- ***Do they live in the same place permanently?***
- ***What are the possible crops in this hot and dry climate? Can many people live in such a place? What would be their food?***

The main occupation of the people living in the arid regions of Iran is animal rearing. Thousands of people depend on animal rearing for their livelihood. There are various tribes among the pastoralists, such as the Loors,



Fig. 2. An elderly Kashkai shepherd is grazing his flock on the soft, new, summer grasses. He left the Persian Gulf about a month ago and travelled 200 miles to reach the grasslands of the mountains.

- *Can these people who are always on the move with their herds of animals, settle down permanently in any one place?*

You have read about the herdsmen of the polar region. They make their homes with reindeer skins. Look at Fig. 3 showing a camp of Iranian herdsmen. What could their tents be made of? Actually, the Iranian herders get plenty of wool from their sheep. They make their tents out of woollen blankets stretched on a wooden frame. People stay for some time in these tents. When they have to go elsewhere, they load their tents onto their animals and move off.

Animals are also a source of food, such as meat and milk products. They buy goods like grain and other necessities by exchanging meat, leather and wool.

Oases

Many dry parts of the plateau are deserts, where there is only sand. It is like the Thar desert of Rajasthan. During the day it is extremely hot and dust storms blow. No plants or trees or water or roads can be seen far into the distance.

The people of the desert areas of Iran live only where they can get water from a well or spring, or where there is underground water. Such places are known as oases. Water which flows from cracks in rocks is called a spring.

Fig. 4 shows an oasis. Due to the availability of water, date palms and other plants grow here.

If there is sufficient water near the oasis, people irrigate the land for cultivating some grain. In many places, they make underground channels to transport water for cultivation. These channels are very long. Look at fig. 5 and see what arrangements are made for water.

Mountains of the North and West

Now let us move from the desert and the mountains in the middle of Iran and go to the mountains in the north and the west. You have seen that there is a lot of rainfall there. They

Fig. 3. Camp of Pastoralists





Fig. 4. An Oasis

have forests also. See fig. 7. It certainly appears as if they do have some rainfall. Even coniferous trees with pointed leaves are found atop the high mountains which also receive snowfall.

Wherever people find suitable places for cultivation, they settle down. You have already seen that in Japan and Indonesia, very few people live on the mountains. Here too only a few, small settlements can be seen. The people on the northern and western mountains of Iran cultivate wheat, cotton, tobacco, barley, beetroot and various kinds of fruits. Generally,

they eat various kinds of *naans*, meat, fruits and vegetables.

These agriculturists are apprehensive of attacks by the nomad tribes. So they construct their houses with high walls. To prevent attacks, they also build sturdy and high walls with strong gates around their cities.

Plains on the Caspian Sea Shore

Let us now move to the extreme north of Iran which lies on the shore of the Caspian Sea.

- **See Map 1. Alongside which mountain range is this region?**

There is very good rainfall here, and the land is well suited to agriculture. Different kinds of crops, including rice, are grown.

The people of this region eat more rice than *naans*. Fruits and dry fruits are also available in plenty. See fig. 7, showing the trees at the foot of the mountains and the luxuriant fields.

You can see the traditional dress of the people. Women wear loose *pyjamas* and *kameez* and tie scarves around their heads. Men wear loose *pyjamas* and *kameez*. They wear a long coat during winter.

Cities of Iran

A lot of planning is needed to arrange for water supply in a dry region like Iran. Where there is water, people settle down. The water available in the middle of the mountains is carried to these cities through underground channels called '*qanats*'. Small canals can also be seen in the ancient cities.

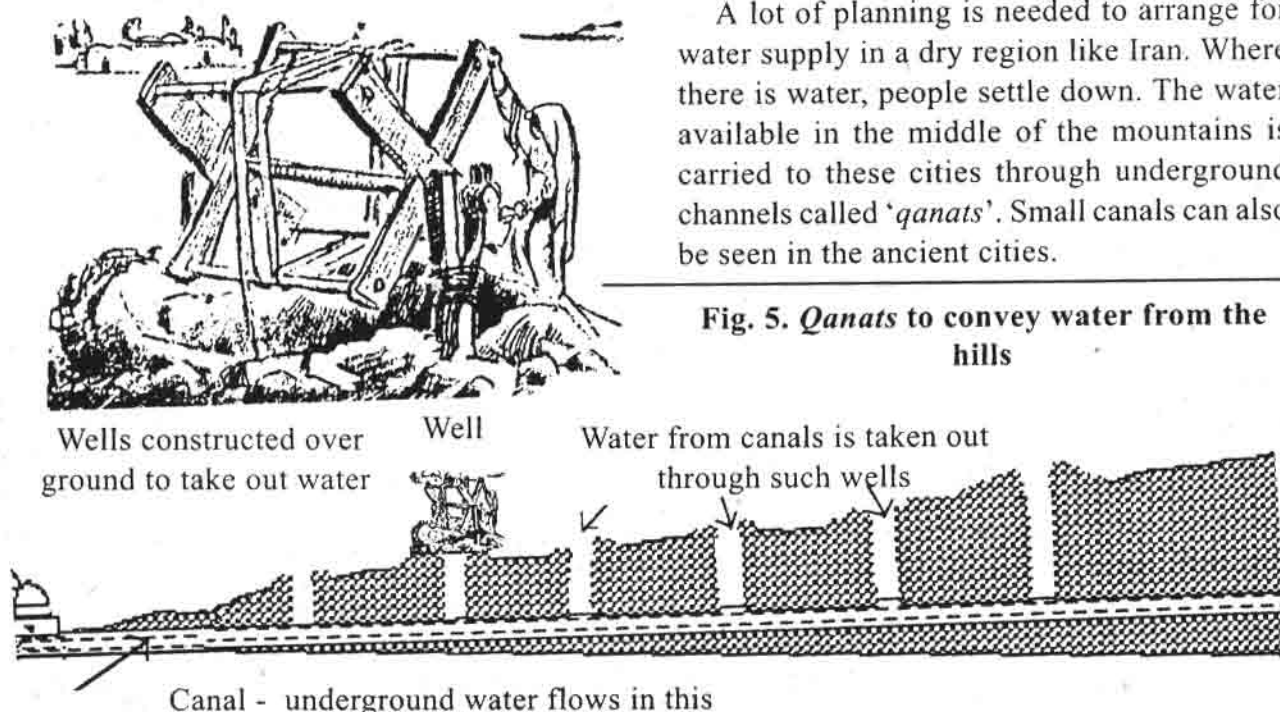


Fig. 5. *Qanats* to convey water from the hills

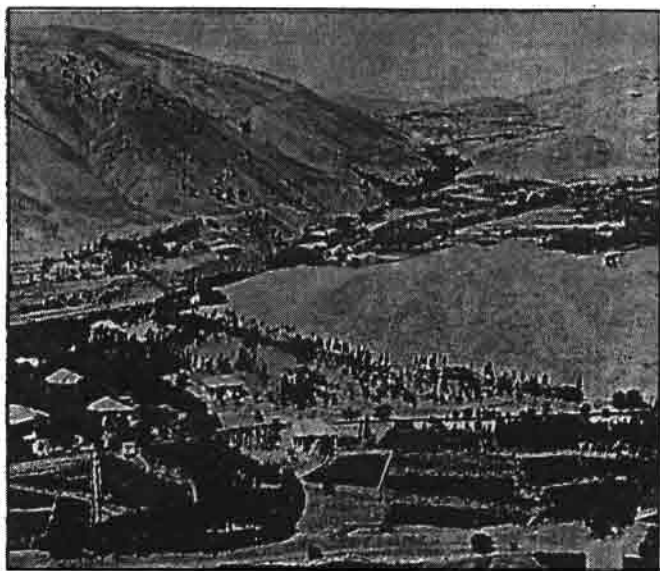


Fig. 6. Villages and lush fields at the foot of dry hills

The surrounding land is also irrigated in the same way. In many places, people collect water in underground tanks.

Teheran is the capital of Iran, situated at the foot of the mountains.

- *From Map 2, identify the mountains near Teheran.*

Isfahan, Shiraz, Abadan, Kirmanshah, etc. are the other important cities of Iran. Locate these cities on the map.

The population of Iran is very small compared to that of India. Settlements have

emerged in accordance with the availability of water and land. Where there is agricultural land, more people have settled down.

There is something valuable in Iran which brings in a lot of money. This is mineral oil or petroleum.

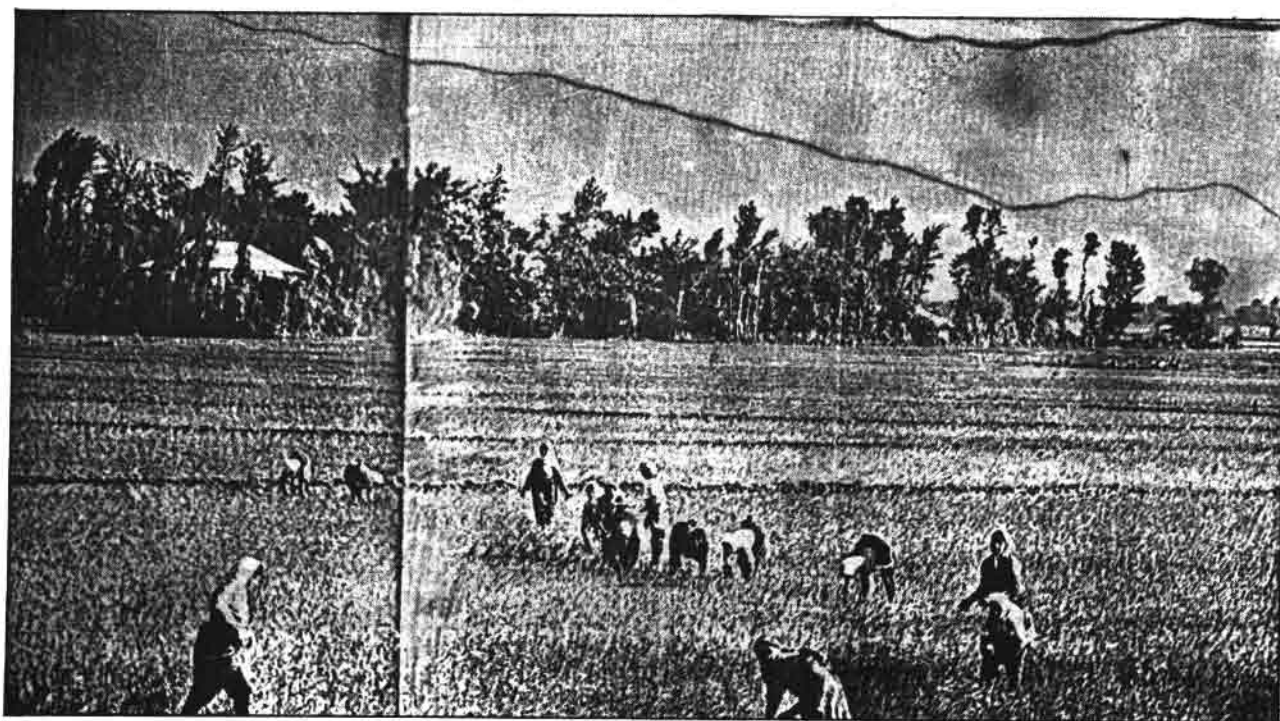
PETROLEUM

You have read about the extraction and use of petroleum in Indonesia. People have been using it for the purpose of fuel since ancient times. People know how to collect and use the oil which came out of the earth.

Nowadays, petroleum is used for many other purposes, too. Petrol is used as a fuel in scooters, cars and other vehicles. Diesel and kerosene are also extracted from it. Cooking gas is also obtained. Machine grease, plastic, coal tar and even some varieties of terylene cloth and fertilizers, are manufactured out of petroleum. Over the past 100-150 years, petroleum has become indispensable for running machines, vehicles, aeroplanes, ships and to produce many other products. The demand for oil is ever increasing.

Explorations have revealed many zones of mineral oil in the western region of Iran. Many

Fig. 7. Plains near the Caspian Sea



of these zones have huge reserves of mineral oil.

With the growing demand for oil, it is extracted on a large scale through oil wells. The extracted oil is transported to the Persian Gulf through pipelines. Generally, crude oil is exported to other countries. Some oil is refined in Abadan.

You can see a picture of an oil refinery in Abadan here (Fig. 8).

Iran earns plenty of revenue through the sale of petroleum. With this money, schools, hospitals and roads, etc. have been constructed. Iran owes its prosperity today to its oil wells.

• *Do you know whether India sells petroleum or whether we buy oil from Iran and other countries?*



Fig. 8. Oil Refinery at Abadan

Industries of Iran

Factories producing a variety of goods have now been set up in Iran. Motor vehicles, electric appliances, textiles, leather and woollen goods are now being manufactured. Weaving woollen carpets is a traditional occupation of Iran, which is world famous for its carpets. These soft carpets, woven with attractive designs, are spread on the floor of houses and tents.

EXERCISES

1. Why is it said that Iran resembles a bowl?
2. What type of region is called a desert? Which part of Iran is a desert?
3. Why are there no big rivers in Iran? Why do the small streams dry up once they reach the plateau?
4. What is an oasis? What advantages do settlers find in an oasis?
5. Where do the forests of Iran lie? Why?
6. Why do the people of northern Iran carry out cultivation? What crops do they grow?
7. What is the importance of petroleum? Write in three sentences.
8. Make a list of the occupations of the Iranian people.

CHAPTER 14

ASIA - PHYSICAL FEATURES

You have read about the Plains of the Narmada, the Satpura Hills, and the Plateau of Bhopal - Vidisha in your region. You probably know that India has high mountains like the Himalayas, great river plains like those of the Ganga and Yamuna, and huge plateaus like the Deccan plateau. You have also read about several countries and regions of Asia. Have you wondered about the rest of Asia? Hang up the physical map of Asia in your classroom and study it with the help of the map in this book. You will see that there are several mountain ranges to the north of the Himalayas.

Look at the map and write down the names of the main mountain ranges of Asia.

PLATEAUS OF ASIA

Look at the map and try to make out the differences between the Deccan Plateau and the Plateau of Iran. Locate the Plateau of Arabia and the Yunan Plateau. There are several plateaus in Central Asia. Locate them and write down their names. Also, say which of them is surrounded by mountains and which ones have escarpments like those of the Bhopal-Vidisha Plateau.

The Pamir Plateau is so high that it is called the Roof of the World! Look at the map and see which mountain ranges radiate from there in different directions.

PLAINS AND RIVERS OF ASIA

There are many huge and wide river plains like those of the Ganga and Indus, in which big rivers flow.

A map of the rivers of Asia is given on page 159. First identify the plains and then say which rivers flow through these plains.

Look carefully at the map of the rivers and you will notice that the rivers of Asia flow from the interior and empty themselves into the oceans on all sides.

Can you guess why this is so? Are the interior regions of Asia higher than the regions close to the coast?

Fill in the table -

Ocean /	Rivers draining into it
Pacific Ocean	
Indian Ocean	
Arabian Sea	
Arctic Ocean	
Persian Gulf	

